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Guidance for the Reregistration of Pesticide Products Containing Carbaryl As the Active Ingredient

(U.S.) Environmental Protection Agency
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GUIDANCE FOR THE
REREGISTRATION OF PESTICIDE PRODUCTS
CONTAINING
CARBARYL
AS THE ACTIVE INGREDIENT

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PESTICIDE PROGRAMS

Washington, DC 20460

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INTRODUCTION

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA Section 3(g), as amended in 1978, directs EPA to reregister all pesticides as expeditiously as possible. Each registrant of a manufacturing use product of the active ingredient who wishes to continue to sell or distribute that product must apply for reregistration.

To fulfill this Congressional mandate, we have established the Registration Standards program which will review all pesticide active ingredients first registered before January 1, 1977. These pesticides will be reviewed in use clusters which are prioritized on the basis of a ranking scheme giving preference to pesticides used on food and feed crops.

The Registration Standards program involves a thorough review of the scientific data base underlying pesticide registrations and an identification of essential but missing studies which may not have been required when the product was initially registered or studies that are now considered insufficient. Our reassessment results in the development of a regulatory position, contained in this document, on each pesticide and its uses. The regulatory position may require the registrant to modify product labels to provide additional precautionary statements, restrict the use of the pesticide to certified applicators, provide reentry intervals, modify uses or formulation types, specify certain packaging limitations, or other requirements to assure that proper use of the pesticide poses no potential adverse effects to human health or the environment.

The scientific review, which is not contained herein but is available upon request, concentrates on the technical grade of the active ingredient and identifies missing generic data. However, during the review of these data we are also looking for potential hazards that may be associated with the formulated (end-use) products that contain the active ingredient. If we find serious concerns, we will bring formulated products under the provisions of the Registration Standards program to the extent necessary to protect the public.

EPA has the authority under FIFRA §3(c)(2)(B) to require that certain registrants submit generic data that will answer our questions regarding the hazard that may result from the intended use of the pesticide under review. Further, §3(c)(2)(B) provides that these data are to be submitted by those registrants who do not qualify for the formulator's exemption [FIFRA §3(c)(2)(D)]. Normally, this means that the registrants who are responsible for filling the data gaps are the manufacturing-use product producers (basic suppliers of the active ingredient). However, end-use producers will not qualify for the formulator's exemption if the source of their active ingredient: (1) is not registered with EPA, and/or (2) is produced by the registrant's firm, or a firm which has ownership in common with the registrant's firm. These end-use producers can qualify for the formulator's exemption if they change their source of supply to a registered source, provided the source does not share ownership in common with the registrant's firm. If the end-use product registrant decides to switch sources, a new Confidential Statement of Formula, EPA Form 8570-4, must be submitted to the appropriate Product Manager within 90 days of receipt of this Guidance Document. The chart on the following page shows what is generally required of those who do and do not qualify for the formulator's exemption in the Registration Standards program.

If you decide to request the Agency to discontinue the registration of any of your products subject to the reregistration requirements of this Guidance Document, please notify the Product Manager named in the cover letter, within 90 days from the receipt of this document, that you wish to voluntarily cancel the registration(s). If you decide to maintain your product registration(s), you must provide the information described in the following pages within the time-frames outlined. EPA will issue a notice of intent to cancel or suspend the registration of any currently registered product if you fail to comply with the requirements set forth in this Guidance Document.

This Guidance Document will be supplemented by EPA with additional information about compliance with data support requirements. In Monsanto v. Administrator, EPA was recently enjoined from implementing in any way the "mandatory data licensing" aspects of §3(c)(1)(D) of FIFRA. EPA is assessing the implications of the injunction for the reregistration process. Because this situation is currently unresolved, EPA has decided to proceed with the requirements in this Guidance Document which do not relate to compliance with the §3(c)(1)(D) provisions and to supplement the Document with additional guidance when circumstances permit. Failure to comply with the provisions of the subsequent guidance will also result in issuance by EPA of an intent to cancel the affected product registration(s).

Registrants are reminded that §6(a)(2) of FIFRA requires you at any time to submit factual information raising concerns of possible unreasonable adverse effects of a pesticide. You should notify the Agency of interim results of studies in progress if those results show possible unreasonable adverse effects.

PRODUCTS SUBJECT TO THE REGISTRATION STANDARDS PROGRAM	ACTION(S) REQUIRED TO MAINTAIN REGISTRATION
I. Products That Do Not Qualify For The Formulator's Exemption	
A. Single Active Ingredient Products*	These products must be reregistered. To obtain reregistration, labeling, packaging and data requirements must be satisfied in accordance with the Registration Standards Guidance Document.
B. Multiple Active Ingredient Products	These products will not be reregistered at this time. However, generic data required to continue the registration of the active ingredient under review, as described in the Registration Standards Guidance Document, will be required and some labeling precautions may also be required.
II. Products That Do Qualify For The Formulator's Exemption	Only when additional restrictions or labeling are needed to protect man or the environment will these products be subject to the Registration Standard requirements. Affected products will be dealt with in a variety of ways, including but not limited to the Label Improvement Program and special intent to cancel notices.

* End-use products of registrants who also produce a manufacturing-use product will not be required to be reregistered provided that registrant fulfills the requirements specified in the Guidance Document for manufacturing-use product(s). Such end-use products will be subject to the labeling changes required for products in "II" above. If there are no manufacturing-use products registered by any company end-use products will be required to be reregistered.

NOTE: If all registrants in "I" above fail to meet the requirements i I-A and B above, then the registrants in "II" lose their right to qualify for the formulator's exemption and become subject to the requirements in I-A and B.

I. Regulatory Position

A. Introduction

This guidance document describes the Agency's regulatory position on registered manufacturing-use products (MPs) containing the insecticide carbaryl. The position is based on an evaluation of all accepted uses of pesticide products, under sections 3 and 24(c) of the FIFRA, with carbaryl as the sole pesticide active ingredient. Other considerations include the known chemical and toxicological characteristics of this pesticide chemical and the established tolerances for residues in or on food and feed commodities. From these considerations the Agency sets forth the data and labeling requirements that must be met by registrants and applicants of carbaryl products in order for the products to be reregistered or registered under this document. Only those registration requirements for current and future substantially similar MPs are addressed here. Future MPs that differ appreciably from those described in this document may require that amendments be made to this document to reflect the differences.

B. Description of Chemical and Use Profile

Carbaryl is the American National Standards Institute's (ANSI) acceptable common name for 1-Naphthyl methylcarbamate or 1-Naphthyl N-methylcarbamate. Other names and code designations are: Carbamine(India), Cekubaryl, Denapon®, Devicarb, Dicarbam®(Germany), Hexavin®, Karbaspray®, Nac®, Rayvon®, Septene®, Sevin®, Tercyl®(Philippines), Tricarnam®, and UC-7744. The current Chemical Abstract Service (CAS) registry number for carbaryl is 63-25-2 and the EPA Shaughnessy number is 056801.

Technical carbaryl is a white crystalline solid with no appreciable odor and which melts at approximately 142°C. It is soluble in most polar organic solvents such as acetone and mixed cresols It is only slightly soluble in water (40ppm at 30°C). It hydrolyzes rapidly in alkaline solutions. The empirical formula is $C_{12}H_{11}NO_2$ and the molecular weight is 201.2.

In addition to the federal registrations, there are 284 carbaryl products manufactured by 95 companies for intra-state use in 26 states. This pesticide is produced domestically by Union Carbide Agricultural Products Company, Inc. It is also imported into the U.S. from Israel, where it is manufactured by the Makhteshim Chemical Works Ltd. Carbaryl is also manufactured in the Federal Republic of Germany and Spain. However, these materials are not registered for use in the U.S.

There are thirty three registered manufacturing-use products which contain carbaryl as an active ingredient of which three are technical carbaryl products (99%). Carbaryl end-use formulations include baits, dusts, granulars(pelleted/tableted), wettable powders, impregnated materials, flowable concentrates, ready-to-use liquids and pressurized liquids. Carbaryl is registered to control insect pests on more than 100 different crops, including citrus, pome, stone, and berry fruits, forage, field and vegetable crops, nuts, lawns, forests, ornamental plants, rangeland, shade trees, as well as poultry and pets and indoor use.

C. Regulatory Background

In 1976 the Agency initiated a review to determine if a Rebuttable Presumption Against Registration (RPAR) should be issued for carbaryl. The primary reason carbaryl was submitted as a candidate for the RPAR process was a 1968 study which found carbaryl to cause teratogenic effects when administered in low doses to pregnant beagle dogs. A 1969 study produced similar effects, again in beagle dogs. In addition, the Agency was concerned that use of carbaryl had the potential to cause the following effects: mutagenicity, oncogenicity, neurotoxicity, and viral enhancement.

After a review of the available data on carbaryl, the Agency published in the Federal Register (45 FR 81869) on December 12, 1980 a notice of determination not to initiate an RPAR for carbaryl. The Agency concluded that the available data did not support the above concerns and therefore the risk criteria governing an RPAR had not been met or exceeded. Carbaryl was returned to the registration process.

During the review of the available data on carbaryl, the Agency did discover some limitations in the data pertaining to the possible adverse effects of carbaryl. The FR Notice, while concluding that an RPAR for carbaryl was not warranted, also stated that additional data would be requested to support carbaryl registrations pursuant to section 3(c)(2)(B) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended. This Guidance Document will require the data referred to in the December 12, 1980 FR Notice as well as other data.

The Agency's conclusions regarding the potential for carbaryl to produce the adverse effects of original concern in the pre-RPAR review are listed in the Regulatory Rationale (Section E).

D. Regulatory Position

Based on a review and evaluation of data and other relevant information on carbaryl, the Agency has made the following determinations:

1. The data that have been reviewed do not show that the criteria listed in 40 CFR §162.11 (a) have been met or exceeded for the uses of carbaryl listed in this Guidance Document. However, because of gaps in the data base, the Agency cannot complete a full risk assessment of carbaryl.

2. The Agency is unable to complete a full tolerance reassessment because of certain residue chemistry and toxicology data gaps, namely a one year dog feeding study and the need for residue data on various processed food commodities.

An acceptable daily intake (ADI) has been calculated. However, the results of the dog feeding study could affect the current ADI calculation. [Refer to Section I, Tolerance Reassessment]

3. No federal or state reentry intervals have been established for carbaryl. Based on available environmental fate and toxicology data, the Agency has determined that the criteria in §158.140 have not been met. Therefore, there is no need to establish a reentry interval.

4. Manufacturing-use pesticide products containing carbaryl as the sole active pesticide ingredient may be registered for sale, distribution, reformulation, and use, subject to the terms and conditions specified in this Guidance Document.

5. Registrants must provide or agree to develop additional data, as specified in the data tables, in order to maintain existing registrations or to obtain new registrations for substantially similar MPs.

6. There are unique label precautions that must be included on the labeling for carbaryl products. These precautions are located in Section H of this Document.

E. Regulatory Rationale

The Agency has determined that it will continue to allow the registration of carbaryl based on the following:

1. Acute Toxicity

Adequate studies are available to assess the acute toxicological effects of carbaryl to humans. Technical carbaryl is assigned Toxicity Category II on the basis of acute oral effects, Toxicity Category III based on dermal and eye effects and Toxicity Category IV on the basis of dermal irritation. Human hazard precautionary statements associated with Toxicity Category II and III labeling [40 CFR §162.10 (h)(2)(i)] should minimize the acute hazards associated with these routes of exposure.

2. Oncogenicity

The Agency used ten studies to evaluate the carcinogenic potential of carbaryl. In evaluating these studies, each was found to be flawed, although for several of the studies the flaws were not serious. Some of the deficiencies were: poor experimental design, insufficient number of animals in the test or control group, improper age of the animals tested, improper execution of the study and duration of the study. No significant increase in the incidence of tumors was observed in these studies at levels as high as 400 ppm (highest level tested for both rats and mice) as compared to the control groups. Therefore, the Agency believes that when the ten studies are examined collectively they provide sufficient evidence that carbaryl is not oncogenic in experimental animals.

3. Neurotoxicity

Several studies were reviewed by the Agency to determine the neurotoxic potential of carbaryl. In one study, carbaryl was administered subcutaneously to hens at the approximate LD_{50} dose of 2000 mg/kg. Upon histopathological examination, the carbaryl treated hens showed no signs of demyelination. In another study, carbaryl was administered to swine at 150 and 300 mg/kg daily for eight and twelve weeks, respectively. Incoordination, muscular weakness and tremors were reported. Microscopic examination of skeletal muscle showed myodegeneration and vascular degeneration at both levels. However, the lesions described were not characterized as being the result of delayed neurotoxicity. Based on this evidence, the Agency believes that carbaryl does not pose a neurotoxic hazard.

4. Mutagenicity

Numerous studies were reviewed to determine the mutagenic potential of carbaryl. Although several of the studies contained deficiencies, when the studies were examined collectively the evidence suggests that carbaryl may have some potential to cause heritable genetic effects. Carbaryl appears to act as a weak mutagen in mutagenic test systems. No evidence has been presented on which to base a conclusion that a reproductive effect would occur as a result of expoexposure to carbaryl. The potential for gonadal effects to occur from an exposure to carbaryl is considered suggestive rather than conclusive. Because only weak mutagenic responses have been measured and there is no evidence conclusively demonstrating the potential of carbaryl to reach germinal tissue, the Agency believes there is enough evidence to conclude carbaryl will not pose a mutagenic risk.

5. Viral Enhancement

The effect of Sevin 4 Oil on the replication of the human herpes virus varicella-zoster (VZ) in human embryonic lung (HEL) and HEP-2 cell cultures was investigated by Abrahamsen and Jerkofsky in 1980. A 12 to 15 fold increase in virus production by cells pretreated with Sevin 4 Oil was observed. Similar results were obtained when HEP-2 cells were used. No enhancement was observed in base oil treated cultures. Viral enhancement appeared to be dose related. These studies were carried out in tissue culture (TC) which which allows no inference concerning interaction of cell, virus, and "chemical" in the intact animal.

The Agency concluded that the work of Abrahamsen and Jerkofsky was preliminary and did not constitute a basis on which to conclude that carbaryl poses a human hazard in terms of viral enhancement. At this time, the Agency does not have any additional evidence to change this conclusion.

6. Teratogenicity

Twenty-four studies have been evaluated to determine the teratogenic potential of carbaryl. In evaluating these studies, the Agency found some to be flawed due to: study design, execution of the study, number of animals tested, inadequate dosage levels, and route and duration of compound administration. Other studies demonstrated no teratogenicity or maternal toxicity at high doses. Some studies demonstrated maternal toxicity but no teratogenicity. There were studies which demonstrated teratogenic effects, although the doses also caused maternal toxicity. Two of the studies that produced teratogenic effects were conducted using the beagle dog. Maternal toxicity was reported at all levels tested including the teratogenic no-effect level. These studies produced no effect levels for the teratogenic effects at dosage levels below those levels which had demonstrated teratogenic with maternally toxic effects in other species.

The Agency found that the quality of the the two studies did not meet current scientific standards. An insufficient number of animals was used in the dose groups. There was not enough attention paid to the condition of the bitches and the maternal and fetal blood levels during the treatment period. Therefore, the dog studies were classified as "supplemental".

The Agency concluded (45 FR 81869) that "the extremely high doses of carbaryl used to elicit effects in the developing organism, coupled with the positive correlation of maternal and fetal toxicity in the multiple species tested (the dog being a possible exception), do not indicate that carbaryl constitutes a potential human teratogen or reproductive hazard under proper environmental usage". At this time the Agency does not have any additional evidence to alter this conclusion.

7. Data Requirements

Although it appears from current data that carbaryl has only low teratogenic potential, the results of the dog studies continue to be a concern that has never been fully resolved. Because of the problems identified in the dog studies, particularly the presence of maternal toxicity at all doses tested, it is not clear that carbaryl would prove to be teratogenic in the dog if tested and evaluated by current procedures or, if so, at what levels. Therefore, the Agency is requesting the teratology study be repeated in the beagle dog.

The December 12, 1980 FR Notice also stated that labeling changes were to be considered in an effort to keep exposure to a minimum. However, since a risk assessment cannot be conducted, label changes are not warranted on the basis of the available dog studies. A new study conducted in accordance with presently accepted protocols would provide the basis for any appropriate regulatory action. In addition, a new dog teratology study will also allow the Agency to assess the risks to dogs independently of their use as human surrogates for teratogenicity from exposure to carbaryl. In the interim, until a new dog teratology study has been submitted and reviewed, the Agency has determined that a label precaution stating not to use carbaryl on pregnant dogs is warranted. Once this study has been submitted and reviewed, a risk assessment will be conducted to determine the adequacy of this precaution.

A major argument that was used to discount the significance of the dog studies was the proposal that there are differences in the metabolism of carbaryl between dog and man. These differences however, have not been demonstrated. Therefore, a metabolism study in the beagle dog versus the rat or monkey and its relation to human metabolism is being requested. This study should allow the Agency to determine if there are measurable or meaningful differences between the metabolism of the dog and other mammalian species. This metabolism study will also be used in the assessment of the effects of carbaryl on kidney dysfunction described below.

Long term dietary studies in rats and dogs and a short term feeding study in humans using carbaryl demonstrated an apparent effect on renal function, although this effect was produced only at the highest dose in each study. This effect was found in the rat and dog through microscopic examinations of the kidneys. In humans, the effect was demonstrated by a reversible increase in the ratio of urinary amino acid nitrogen to creatinine nitrogen which has been interpreted as a slight decrease in the ability of the proximal convoluted tubules to reabsorb amino acids. Gelatin capsules containing 0.06 and 0.12 mg/kg of carbaryl had been ingested daily for six weeks by male subjects with an effect observed at the 0.12 mg/kg level but not at the 0.06 mg/kg level. The NOEL in the human study was not utilized in the derivation of the ADI because results of this study were not supported with individual data, were limited to only a few individuals per dose (all male), was conducted for only a short period of time, and provided opposite results at the low versus high dose compared to control values. Furthermore, the ratio of amino acid to creatinine nitrogen is only a rough measure of the reabsorptive capacity of the proximal tubules. None of the subjects, at any dose, experienced any other effects attributable to carbaryl. Clinical chemistry and urinalysis examinations in the rat and dog were incomplete, so that no subsequent comparison could be made. A one year dog feeding study is being required in order to determine the effects of carbaryl on kidney dysfunction. Because of the inconclusiveness of the currently available data, no regulatory action based on a positive reversible kidney effect is warranted at this time

No other human toxicological hazards of concern to the Agency have been identified in the studies reviewed for this Registration Standard.

8. Tolerance Exposure

Based on residue chemistry and toxicological considerations, there is no evidence to suggest that the current tolerances are likely to expose the public to unreasonable adverse effects.

9. Incidents

The Pesticide Incident Monitoring System (PIMS) records from 1966 through January, 1980 shows 441 poisoning incidents, including three fatalities, for carbaryl. The fatalities were the result of suicides. Approximately 50% of the reported incidents cannot be completely attributed to carbaryl because these incidents involved carbaryl in combination with other active pesticide ingredients. The remaining incidents do not conclusively indicate any hazards associated with the registered uses of carbaryl. A substantial number of these incidents occurred as a result of failure to follow label directions, improper use of safety procedures in the home, improper use of application equipment, equipment failure and many other reasons. Carbaryl was also cited as responsible for bee kills.

The incidents that have occurred (except for the bee kills) do not indicate that there is a consistent pattern of hazard associated with the registered uses of carbaryl. Rather, the number of incidents involving carbaryl may be a reflection of the common, high frequency and broad spectrum use of carbaryl.

10. Environmental Fate

Available data are insufficient to fully assess the environmental fate of carbaryl. Carbaryl is expected to be stable under acidic conditions but decomposes under alkaline conditions. Photolysis varies with the seasons of the year. An evaluation by $^{14}CO_2$ evolution demonstrated that carbaryl degradation in soil varies with the soil type in the order of clay loam > sandy loam > clay > loam > loamy sand. Carbaryl is moderately mobile in soil with mobility decreased by increased organic carbon. Preliminary data indicate that there may be a potential for carbaryl to accumulate in catfish, crayfish, snails, duckweed, and algae. Based on the available data on leaching characteristics, degradation rates and pathways, the Agency does not consider carbaryl to have the potential to contaminate groundwater. The additional studies requested in this Guidance Document should allow the Agency to improve its assessment of the environmental fate of carbaryl.

11. Ecological Effects

Based on studies available to assess hazards to wildlife and aquatic organisms, carbaryl is characterized as extremely toxic to aquatic invertebrates and certain estuarine/ marine organisms. It is also extremely toxic to honey bees. It is moderately toxic to both warmwater and coldwater fishes and has low toxicity to birds. There is insufficient information to characterize the chronic toxicity of carbaryl to aquatic invertebrates. Label precautions required by this Guidance Document should reduce the hazard to wildlife. Once data gaps are filled, additional labeling precautions may be required.

12. Summary of Regulatory Rationale

Under FIFRA the Agency cannot cancel or withhold registration simply because data are missing or inadequate (see Sections 3(c)(2)(B) and 3(c)(7) of the FIFRA). Rather, issuance of this Guidance Document provides a mechanism for identifying data needs. These data will be reviewed and evaluated when they are received and the Agency will determine at that time whether they will affect the registrations of carbaryl.

F. Criteria for Products Subject to the Guidance Document

This Guidance Document covers products that contain carbaryl as the sole pesticide active ingredient, and the chart in the Introduction describes the extent to which such products are subject to this Document. Applicants for registration or reregistration of such products must comply with all terms and conditions described herein. This includes making a commitment to fill data gaps on a schedule specified by the Agency. Also, applicants for reregistration must follow the instructions contained in the Guidance Document and complete and submit the appropriate forms within the specified times. End-use products must be in compliance with the label changes specified in this Document.

G. Acceptable Ranges and Limits

1. Product Composition Statements

To be fully covered under this Guidance Document, manufacturing-use products must contain carbaryl as the sole active ingredient. Each MP formulation proposed for reregistration or registration must be fully described with an appropriate certification of limits.

2. Acute Toxicity Limit

The Agency will consider for registration any MP whose acute toxicity category (I, II, III, IV) is supported by adequate acute toxicity data and appropriate precautionary statements in the labeling.

H. Required Labeling

All manufacturing-use products containing carbaryl must bear appropriate labeling as specified in 40 CFR §162.10. More specific requirements are as follows:

1. Label Requirements for Manufacturing-Use Products

a. Ingredient Statements

The ingredient statement for MP's must list the active ingredient as:

carbaryl: 1-Naphthyl N-methylcarbamate
or
1-Naphthyl methylcarbamate

b. Use Pattern Statement

All MPs must state that they are intended only for formulation into end-use products for any of the use patterns listed below. A limiting factor will be the data that supports these use patterns. No use may be included in the labeling where the registrant fails to comply with the data requirements in either Table A or Table B for that use pattern.

- Terrestrial, food uses on: alfalfa, almonds, apples, apricots, asparagus, bananas, beans, garden beets, birdsfoot trefoil, blackberries, blueberries, boysenberries, broccoli, brussels sprouts, cabbage, carrots, cauliflower, celery, cherries, chestnuts, chinese cabbage, citrus fruits, clover, collards, corn, cotton, cowpeas, cucumbers, dandelions, dewberries, eggplant, endive, filberts, flax, grapes, grass(including pastures and rangeland), horseradish, kale, kohlrabi, lentils, lettuce, loganberries, sugar maple (sap), melons, millet, mustard greens, nectarines, okra, olives, parsley, parsnips, peaches, peanuts, pears, peas, pecans, peppers, pistachio nuts, plums(fresh prunes), potatoes, prickly pear cactus(pods and fruit)(Special Local Need use only), pumpkins, radishes, raspberries, rutabagas, salsify, sorghum, soybeans, spinach, squash, strawberries, sugar beets, sunflowers, sweet potatoes, swiss chard, tomatoes, turnips, walnuts and wheat.

- Terrestrial, non-food uses on: ornamental trees, ornamental woody shrubs, ornamental herbaceous plants, lawns and turf, uncultivated non-agricultural areas, recreational areas and parks, plague resevoir host animal premises and tobacco.

- Greenhouse, food use on: Refer to the crops listed for terrestrial, food use.

- Greenhouse, non-food use on: ornamental plants.

- Domestic outdoor use on: ornamental trees, ornamental woody shrubs, ornamental herbaceous plants, lawns and turf, pet sleeping quarters, domestic dwellings, and garbage cans.
- Aquatic, food use on: cranberries, rice, oysters(Special Local Need use only).
- Forests use on: Christmas tree plantations, forest trees, recreational areas and parks, shelterbelt plantings.
- Indoor use on: dogs and pets, poultry and horses, poultry houses, barns, domestic dwellings, recreational areas, commercial and industrial and institutional(inedible areas only), food marketing and storage and distribution(inedible areas), food processing plants (inedible areas), eating establishments(inedible areas).

The attached "Index" entry summarizes the registered uses for carbaryl as a single active ingredient. Refer to it for a more complete description of the uses, dosage rates and restrictions for carbaryl.

c. Precautionary Statements

Labels for all MP products containing carbaryl must bear statements reflecting the acute human toxicity of the compound. The following hazard statements must appear on MP labels:

- All MP products containing carbaryl 69% and greater must bear the signal word WARNING. The Hazards To Humans And Domestic Animals paragraph must read as listed below:

  WARNING: May be fatal if swallowed. Avoid breathing dust. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling.

- All products containing carbaryl 68% or less must bear the the signal CAUTION. The Hazards To Humans And Domestic Animals paragraph must read as listed below:

  CAUTION: May be harmful if swallowed. Avoid breathing dust. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling.

- All MP products containg carbaryl must bear the following Environmental Hazards paragraph:

  > This pesticide is extremely toxic to aquatic invertebrates. Do not discharge into lakes, streams, ponds, or public water except in accordance with an NPDES permit. For further guidance, contact the nearest EPA Regional Office.

2. Label Requirements for End-Use Products

a. Ingredient Statement

The ingredient statement for EP products must list the active ingredient statement as:

Carbaryl: 1-Naphthyl N-methylcarbamate
or
1-Naphthyl methylcarbamate

b. Precautionary Statements

Labels for all EP products containing carbaryl must bear statements reflecting the acute human toxicity of the compound. The following hazard statements must appear on EP labels:

- All EP products containing carbaryl 69% and greater must bear the signal word WARNING. The Hazards To Humans And Domestic Animals paragraph must read as listed below:

  > WARNING: May be fatal if swallowed. Avoid breathing dust [vapors or spray mist]. Avoid contact with skin, eyes or clothing. Wash thoroughly after handing.

- All EP products containing carbaryl 68% or less must bear the signal word CAUTION. The Hazards To Humans And Domestic Animals paragraph must read as listed below:

  > CAUTION: May be harmful if swallowed. Avoid breathing dust [vapors or spray mist]. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling.

- All EP products containing carbaryl must bear an Enviromental Hazards paragraph. This paragraph must read as listed below:

  (a) This product is extremely toxic to aquatic invertebrates.

  (b) Do not apply directly to water or wetlands.

  (c) Do not contaminate water by cleaning of equipment or disposal of wastes.

  Products which contain forest use directions must modify statement (b) to read as listed below. Statements (a) and (c) remain unchanged.

  > Do not apply directly to water or wetlands, except under the forest canopy.

  Products which contain directions for citrus, corn, cotton, cranberries, rice, sorghum, soybeans forests, or mosquito control must modify statement (a) to read as listed below. Statements (b) except for forest use and rice and (c) remain the same.

  > This pesticide is extremely toxic to aquatic and estuarine invertebrates.

  Products which contain directions for use for rice must modify statement (b) to read as listed below. Statement (c) will remain the same and statement (a) will remain as previously discussed.

  > Do not apply directly to water or wetlands, except for rice uses. Discharge from rice fields may kill aquatic and estuarine invertebrates.

  Products which contain directions for use for rice and forests will require the following paragraph:

  > This product is extremely toxic to aquatic and estuarine invertebrates. Do not apply directly to water and wetlands, except under the forest canopy and use on rice. Discharge from rice fields may kill aquatic and estuarine invertebrates. Do not contaminate water by cleaning of equipment or disposal of wastes.

- All products containing carbaryl with outdoor use directions must include the Bee Caution listed below their Environmental Hazards paragraph.

> This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

- Until crop rotation data are submitted and evaluated, the crop rotation restriction listed below must be placed on all EP products containing carbaryl:

  > Do not rotate to any crop not listed on this label or other carbaryl labels.

- Preliminary data indicates that there may be a potential for carbaryl to accumulate in catfish and crayfish. Therefore, all EP products containing carbaryl and directions for use on rice must add the restriction listed below.

  > Do not use on rice fields in which crayfish and catfish farming are included in the cultural practice.

  To delete the above restriction refer to additional data being requested in the Environmental Fate tables which must be submitted and evaluated.

- Available data shows that residues on cowpeas at a 0 day PHI can be as high as 26.0 ppm. The established tolerance for cowpeas is 5.0 ppm. Therefore, EP products containing directions for use on cowpeas must change the PHI from 0 day to 3 days.

- All products containing carbaryl with directions for use on dogs must include the precaution listed below. This precaution must be placed in the Hazards To Humans And Domestic Animals paragraph.

  > Do not use this product on pregnant dogs.

H. Tolerance Reassessment

Based on the established tolerances published in 40 CFR §180.169, the Theoretical Maximum Residue Contribution (TMRC) for carbaryl residues in the human diet is calculated to be 5.48 mg/day for a 1.5 kg food diet for a 60 kg person. The Acceptable Daily Intake (ADI) of carbaryl is 0.1 mg/kg/day. This is based on a two-year rat feeding study No Observable Effect Level (NOEL) of 200 ppm and a safety factor of 100. The Maximum Permissible Intake (MPI) is 6 mg/day. The percent of the ADI that has been utilized at this time is 91.33%, although data being requested by this Guidance Document may necessitate a reevaluation of the ADI. Long term dietary studies using carbaryl demonstrated an apparent effect on renal function. In addition, the World Health Organization (WHO) has noted, in deriving their ADI for carbaryl, that kidney effects occurred in humans at lower levels than in laboratory animals, although this could be the result of insufficient or incomplete clinical evaluations in the dog. A 1-year dog feeding study is being requested in order to determine the effects of carbaryl on kidney dysfunction. The results of these data may suggest that the ADI for carbaryl be recalculated.

U.S. tolerances for most raw agricultural commodities are supported by current residue chemistry data. In some cases however, more data are required:

- Additional residue data are needed for soybeans at 2.5 lb. active/acre and cranberries and blueberries at 4 lb. active/acre to support dust formulations.
- Additional residue data are needed on cotton or a 7-day preharvest interval must be established.
- Additional residue data are needed on alfalfa or a 3-day preharvest interval must be established.
- A tolerance for sugarbeet roots must be proposed.

- Additional residue data on grass to support the rangeland and pasture uses must be submitted.
- Aerial application data on citrus must be submitted.
- Additional data are needed on oats, rye and barley to obtain a group tolerance.
- Data are needed to establish a food additive regulation to support the use of carbaryl in food areas of food handling establishments, restaurants, or other places where food is prepared or processed.

Residue data on the following processed commodities must be submitted.

- Alfalfa meal
- Dried apple pomace
- Dried apricots
- Bean cannery waste
- Citrus molasses, oils, and peels
- Corn (field) milled products
- Corn (sweet) cannery wastes
- Grape pomace, grape juice, raisins and raisin wastes
- Olive pomace
- Peanut soapstock
- Prunes
- Potato granules, chips, and dried products
- Rice bran with germ, polished rice, hulls and milled products
- Sorghum flour and milled products
- Sorghum (sweet) syrup
- Soybean meal, hulls, soapstock, crude oil, and refined oil
- Sugarbeet pulp, molasses, and refined sugar

- Sunflower meal, hulls, oil (crude), and oil (refined)
- Tomato pomace (wet and dry), puree, catsup, and juice

The interim tolerance of 0.5 ppm for residues of carbaryl and 1-naphthol on eggs, calculated as carbaryl, must be converted to a permanent tolerance.

The U.S. tolerances for carbaryl for many commodities are numericallly compatible with the maximum residue levels (MRL's) of Codex Alimentarius and/or the tolerances of Canada and Mexico. However, U.S. tolerances are established for residues of carbaryl and 1-naphthol, calculated as carbaryl (excepting meat and milk, where other metabolites are included). Internationally, other than the U.S., tolerances for carbaryl are usually expressed in terms of carbaryl alone.

The inclusion of 1-naphthol in the expression of tolerances for carbaryl was based on the inadequacy of the residue data to differentiate how much of the residue was carbaryl versus 1-naphthol. Present analytical methodology can differentiate between carbaryl and 1-naphthol residues. Therefore, to provide for conformity between U.S. tolerances for carbaryl and tolerances established by the Codex Alimentarius, Canada, and Mexico, the expression of U.S. tolerances for carbaryl will be changed to omit reference to 1-naphthol. However, the data from studies on plant metabolism show such variability that a simple ratio of carbaryl/1-naphthol cannot be established. Therefore, any numerical change in current tolerances for carbaryl to exclude 1-naphthol to permit comformity with Codex will be proposed within the year.

Crop groupings (48 FR 29855) can be established for Brassica (Cole) Leafy Vegetables, Fruiting Vegetables (except Cucurbits), Fruiting Vegetables, (Cucurbits), Stone Fruits, and Small Fruits and Berries. A crop grouping for Citrus Fruits has been previously established.

Corrections to 40 CFR 180.169 will be made as follows:

- A new group tolerance for "Brassica (Cole) Leafy Vegetables" will be established at 10.0 ppm.
- A new group tolerance for "Fruiting Vegetables (except Cucurbits)" will be established at 10.0 ppm.
- A new group tolerance for "Fruiting Vegetables (Cucurbits)" will be established at 10.0 ppm.
- A new group tolerance for "Stone Fruits" will be established at 10.0 ppm.
- A new group tolerance for "Small Fruits and Berries will be established at 12.0 ppm.

CARBARYL*

TYPE PESTICIDE: Insecticide, Acaricide, Molluscicide

FORMULATIONS: Tech (95%, 97.5%, 99%); FI (9%, 46%, 50%, 80%, 85%); D (1.5%, 1.75%, 2%, 2.5%, 2.65%, 3%, 5%, 7.5%, 10%, 20%, 25%, 50%, xx%); G (1.25%, 1.3%, 1.75%, 1.786%, 2%, 2.05%, 2.1%, 2.3%, 3.34%, 4.55%, 4.6%, 5%, 6%, 6.24%, 6.25%, 7.15%, 7.5%, 8%, 8.75%, 10%, 14.29%, 15%, 16%, 20%); P/T (2.1%, 5%, 10%, 20%); WP (50%, 80%, 85%); WP/D (2%, 5%, 10%, 50%); Impr (8.5%, 9%, 12%, 16%); FlC (1.6 lb/gal, 2 lb/gal, 2.36 lb/gal, 3.8 lb/gal, 4 lb/gal, 5 lb/gal, 0.5%, 5%, 10%, 21.5%, 23%, 25%, 27%, 41.8%, 42.6%); RTU (2 lb/gal, 3.8 lb/gal, 4 lb/gal, 0.5%); PrL (0.5%)

GENERAL WARNINGS AND LIMITATIONS: Carbaryl may be injurious to tender foliage. Do not apply when foliage is wet or when rain or excessive humidity is expected during the next 2 days. Carbaryl is unstable under highly alkaline conditions. It is not effective if used with alkaline materials such as Bordeaux, lime, lime sulfur, and casein-lime spreaders. It is not compatible with diesel fuel, kerosene, fuel oil, or aromatic solvents. Do not apply where shrimp and crabs are important resources as these may be killed at listed application rates.

Bee Cautions:

(proposed) Carbaryl is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treated area.

Agricultural Crop Tolerances:

Barley, grain - 0 ppm
Barley, green fodder and straw - 100 ppm
Chestnuts - 1 ppm
Lentils - 10 ppm
Maple sap - 0.5 ppm
Pistachio nuts - 1 ppm
Rye, grain - 0 ppm
Rye, green fodder and straw - 100 ppm

Definition of Terms:

*Tablespoons actual. A hypothetical quantity computed by multiplying the number (or equivalent number) of tablespoons of product by the concentration of carbaryl in the formulation.

**Computed from tablespoon/teaspoon dosages.

Claims for pest control limited to suppression of population are indicated by parenthesized pest name.

Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations

AGRICULTURAL CROPS

General Warnings and Limitations: For spray formulations on vegetable and field crops, apply per acre rates in a minimum of 3 gallons of water per

*1-naphthyl methyl carbamate
1-napthyl N-methylcarbamate

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations

acre by aircraft or in a minimum of 15 gallons of water per acre by ground equipment. For spray formulations on deciduous fruit crops, apply per acre rates in a minimum of 10 gallons of water per aircraft, in 20 to 100 gallons of water per acre by low volume ground equipment, or in 100 to 800 gallons of water per water per acre by high volume ground equipment. Apply 400 to 2,000 gallons of finished spray per acre on citrus by ground equipment. Apply a minimum of 15 gallons of water per acre on young fruit plantings. If low volume ground equipment is desired, the rate per 100 gallons of water should be adjusted in order to maintain the correct rate of active ingredient per acre. For small fruits, apply in 10 to 25 gallons of water per acre by aircraft, in 30 to 100 gallons of water per acre by low volume ground equipment, or in 100 to 300 gallons of water per acre by high volume ground equipment. For dust formulations, apply to upper and lower leaf surfaces, but excessive dusting may result in crop injury. If used in accordance with label directions, forage, feed and other crops, including almond hulls, bean vines, carrot tops, citrus pulp, cotton forage, cowpea hay, pea vines, rice straw, rye straw, soybean hay, and sugar beet tops may be grazed or harvested for use as feed for dairy and meat animals without resulting in residues in excess of established tolerances in milk or meat. Apply when pest first appears and repeat at 5 to 14 day intervals as needed, unless otherwise specified.

Center Pivot Irrigation System Directions: When using carbaryl through center pivot irrigation system, apply in 1 to 4 gallons of water per acre. Set sprinkler to deliver 0.1 to 0.3 inches of water per acre. Start sprinkler and then uniformly inject the suspension into the irrigation water line so as to deliver the desired rate per acre. The suspension should be injected with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. When treatment has been completed, further field irrigation over the treated area should be avoided for 24 to 48 hours to prevent washing the chemical off the crop.

23001AA	Alfalfa		100 ppm (alfalfa and hay) No preharvest interval through 1.6 pounds per acre for foliar application. No preharvest interval through 1.78 pounds per acre for ultra low volume foliar application. No preharvest interval through 2 pounds per acre for application through center pivot irrigation. No preharvest interval through 1.5 pounds per acre for broadcast soil application. Per acre rates may be applied by aircraft. Repeat applications at 7 to 14 day intervals as needed. Observe plant response precaution.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Alfalfa (continued)		
ITBJADA	Alfalfa caterpillar	0.88-1.13 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal FlC)	Foliar application.
INAMARA	Bean leaf beetle		
INAMACA	Cucumber beetles		
ITBCCCA	Green cloverworm		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IRASADA	Threecornered alfalfa hopper		
IMOAAAA	Thrips		
ITBCATA	Velvetbean caterpillar		
ITBJADA	Alfalfa caterpillar	1-2 lb/A (80% WP)	Center pivot irrigation application.
IRAFAAA	Leafhoppers		
INASBUC	Alfalfa weevil (larvae)	0.88-1.56 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal FlC)	Foliar application. For alfalfa weevil larvae, if pretreatment damage is extensive, cut alflafa and treat the stubble. Use higher rate in areas east of the Rocky Mountains. On dense growth, apply in 25 to 40 gallons of water per acre for thorough coverage. In western areas, apply the lower rate in early spring.
ITBCCFA	Armyworm		
INASBUA	Clover head weevil		
ITBCBOA	Corn earworm		
ITBCABA	Cutworms		
INAPAOA	European alfalfa beetle		
INASBTC	Egyptian alfalfa weevil (larvae)		
ITBCCTA	Fall armyworm		
IQAMARA	Lygus bugs		
IQAQAAA	Stink bugs		
ITAAAMA	Webworms		
ITBCCQA	Yellowstriped armyworm		
INASBUC	Alfalfa weevil (larvae)	0.5-1 lb/A (50% WP) (4 lb/gal FlC)	Foliar application. For use in CO, ID, NE, NV, and OR.
INBGAAA	Blister beetles	0.44-1.13 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (4-5 lb/gal FlC)	Foliar application.
INAPAFA	Mexican bean beetle		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Alfalfa (continued)		
IVABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
		0.59-1.78 lb/A (3.8-4 lb/gal FlC) (3.8-4 lb/gal RTU)	Ultra low volume or low volume foliar application. Apply the lower rate for nymphs on small plants or sparse vegetation and the higher rate when grasshoppers are mature or vegetation is thick. May be applied by aircraft undiluted or diluted with diseal fuel, number 2 fuel oil, or kerosene. May be applied by ground mist blowers or cold fogging when diluted with aliphatic compounds mentioned above. Refer to manufacture's directions for additional information on dilution rates, nozzles, and calibration. Do not mix with alcohol, water, or aromatic solvents. Do not mix with fertilizers. Formulated with petroleum distillate.
		2 lb/A (80% WP)	Center pivot irrigation application.
SASAAA	Ants	1.5 lb/A (5% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, apply in late afternoon.
ITBCCFA	Armyworms		
IVAHAAA	Crickets (including field crickets)		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IVABAAA	Grasshoppers		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
3001AA	**Almond**		1 ppm (nuts) 40 ppm (almond hulls) No preharvest interval through 8 pounds per acre for foliar application.
TBGBBA	Filbertworm	1 lb/100 gal or 3-8 lb/A (50-85% WP) (50% WP/D) (2-4 lb/gal FlC) or 1 tbls actual*/gal (50% WP) or 0.167 oz**/gal (2 lb/gal FlC) (25% FlC)	Foliar application. Apply in 'popcorn' or petal fall stages and again when the May brood of the peach twig borer begins to hatch or thereafter as needed.
TBUAGA	Fruittree leafroller		
TAMABA	Peach twig borer		
RAKBYA	San Jose scale		
RAAABG	Scales (crawlers)		
ITBUAGA	Fruittree leaf roller	4-8 lb/A (10% D)	Foliar application. May be applied by aircraft.
ITBMCFA	Navel orangeworm	0.167 oz**/gal (2 lb/gal FlC) or 1 lb/100 gal (4 lb/gal FlC)	Foliar application. Time early and midseason applications to coincide with peak moth flight. Make a late season application at the initiation of hull split or up to 10 percent hull split.

	Site, Dosage and Formulation		Tolerance, Use, Limitations
04001AA	Apple		10 ppm 1 day preharvest interval through 10 pounds per acre for foliar application. 1 day preharvest interval through 2.5 pounds per acre for broadcast soil application. To avoid possible foliar injury to McIntosh and York varieties, do not apply before the second cover spray east of the Rocky Mountains. To avoid apple thinning, delay use at least 30 days following full bloom. Foliar injury may result from combination with summer oils.
IRACAUA	Apple aphid	3.4-6 lb/A (5-10% D) (5% WP/D) or 1.5-10 lb/A (5-10% D)	Foliar application. For use east of the Rocky Mountains. May be applied by aircraft. For rosy apple aphid control, apply before leaves curl. For scale control, apply when crawlers are present in spring and early summer. For apple maggot control, apply at 10 day intervals in July. For codling moth and plum curculio, apply for full coverage in normal schedules. Refer to your state recommendations.
IOBMAQA	Apple maggot		
IRAWAHA	Apple mealybug		
ITBGAZA	Codling moth		
ITAUAEA	Eastern tent caterpillar		
ISBEARA	European apple sawfly		
ITBGBOA	Eyespotted bud moth		
IRAKBVA	Forbes scale		
ITBUAGA	Fruittree leafroller		
INBPAZA	Japanese beetle		
IRAHAJA	Lecanium scales		
ITBUALA	Orange tortrix		
IRAKBHA	Oystershell scale		
IRAXALA	Pear psylla		
IRAGACA	Periodical cicada		
INASAVA	Plum curculio		
ITBUAPA	Redbanded leafroller		
IRACBQA	Rosy apple aphid		
IRAKBYA	San Jose scale		
ITAPABA	Tentiform leafminer		
IRAFBAA	White apple leafroller		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Apple (continued)		
IRACAUA	Apple aphid	0.5 lb/100 gal or 3-6 lb/A (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 3-10 lb/A (4 lb/gal FlC) or 0.5 tbls actual*/gal (50-85% WP) or 0.08-0.167 oz**/gal (2-5 lb/gal FlC) (10-41.8% FlC)	Foliar application. For use east of the Rocky Mountains. Heavy aphid populations may require repeated applications. For codling moth, apply for full coverage in normal spray schedules.
IRAWAHA	Apple mealybug		
ITBGAZA	Codling moth		
IRAFBAA	White apple leafroller		
IRACAUA	Apple aphid	0.75-1 lb/100 gal or 3-6 lb/A (50-85% WP) (50% WP/D) (2-4 lb/gal FlC) or 3-10 lb/A (4 lb/gal FlC) or 1 tbls actual*/gal (50% WP) or 0.125-0.167 oz**/gal (2-2.36 lb/gal FlC) (10-27% FlC)	Foliar application. For use west of the Rocky Mountains. Heavy aphid populations may require repeated applications. For scale control, apply when crawlers are present. For pear psylla control, apply when eggs hatch or when young nymphs are present. For codling moth, apply for full coverage in normal schedules.
ILAJAKA	Apple rust mite		
IRAXAJA	Apple sucker		
ITBKABA	Bagworm		
ITBGAZA	Codling moth		
INAMACA	Cucumber beetles		
ITBGBOA	Eyespotted bud moth		
ITBCBSA	Green fruitworm		
IRAHAJA	Lecanium scales		
ITBGASA	Lesser appleworm		
IQAMARA	Lygus bugs		
ITBUALA	Orange tortrix		
IRAKBHA	Oystershell scale		
IRAXALA	Pear psylla		
ILAJAOA	Pear rust mite		
ILAJAWA	Pearleaf blister mite		
IRAKBYA	San Jose scale		
ITAPABA	Tentiform leafminer		
IRACBUA	Woolly apple aphid		

EPA Index to Pesticide Chemicals

CARBARYL

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Apple (continued)		
RACAUA OBMAQA LAJAKA TBKABA TBGAZA TAUAEA SBEARA TBGBCA RAKBVA TBUAGA TBCBSA NBPAZA RAHAJA TBGASA OBMAFA RAKBHA RAXALA LAJAOA LAJAWA RAGACA NASAVA TBUAPA RACBQA RAKBYA QAMATA TAPABA RACBUA TBUACA	Apple aphid Apple maggot Apple rust mite Bagworm Codling moth Eastern tent caterpillar European apple sawfly Eyespotted bud moth Forbes scale Fruittree leafroller Green fruitworm Japanese beetle Lecanium scales Lesser appleworm Oriental fruit moth Oystershell scale Pear psylla Pear rust mite Pearleaf blister mite Periodical cicada Plum curculio Redbanded leafroller Rosy apple aphid San Jose scale Tarnished plant bug Tentiform leafminer Woolly apple aphid Yellowheaded fireworm	1 lb/100 gal or 3-6 lb/A (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 3-10 lb/A (4 lb/gal FlC) or 1 tbls actual*/gal (50-85% WP) or 0.08-0.167 oz**/gal (2-5 lb/gal FlC) (10-41.8% FlC)	Foliar application. For use east of the Rocky Mountains. Heavy aphid populations may require repeated applications. For rosy apple aphid control, apply before leaves curl. For scale control, apply when crawlers are present. For pear psylla control, apply when eggs hatch or when young nymphs are present. For apple maggot control, apply at 10 day intervals in July. For codling moth, oriental fruit moth, and plum curculio, apply for full coverage in normal schedules.
IRACAUA ITBGAZA ITBCBSA ITBUALA	Apple aphid Codling moth Green fruitworm Orange tortrix	5 lb/A (50% WP)	Foliar application. Apply as a concentrate spray in a minimum of 50 gallons of water per acre by ground equipment or in 20 gallons of water per acre by aircraft.
ISASAAA IVAHAAA ITBCABA IVABAAA IIFAAEA	Ants Crickets Cutworms Grasshoppers Sowbugs	2-2.5 lb/A (5% G) (5% P/T)	Broadcast soil application. Granular formulation may be applied by aircraft.

EPA Index to Pesticide Chemicals

CARBARYL

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
5001AA	**Apricot**		10 ppm 3 day preharvest interval through 8 pounds per acre for foliar or bark application. 3 day preharvest interval through 2.5 pounds per acre for broadcast soil application.
IRACAAA	Aphids	3.75-8 lb/A (7.5-10% D) or 1 lb/100 gal or 3-6 lb/A (50-85% WP) (2-5 lb/gal F1C) or 3-8 lb/A (4 lb/gal F1C) or 1 tbls actual*/gal (50% WP) or 0.125-0.375 oz**/gal (2-5 lb/gal F1C) (10-25% F1C)	Foliar application. For scale control, apply when crawlers are present. For codling moth, oriental fruit moth, and plum curculio, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved.
IRACCSA	Black cherry aphid		
IRAHAGA	Brown soft scale		
IQAAABA	Catfacing insects		
ITBGAZA	Codling moth		
INAMACA	Cucumber beetles		
ITAUAEA	Eastern tent caterpillar		
IMDCABA	European earwig		
ITBGBOA	Eyespotted bud moth		
IRAKBVA	Forbes scale		
ITBUAGA	Fruittree leafroller		
ITBCBSA	Green fruitworm		
INBPAZA	Japanese beetle		
INBPADA	June beetle		
IRAHAJA	Lecanium scales		
IRACCAA	Mealy plum aphid		
IRAKBPA	Olive scale		
ITBUALA	Orange tortrix		
IOBMAFA	Oriental fruit moth		
IRAKBHA	Oystershell scale		
ITBUAYA	Pandemis moths		
ITAMABA	Peach twig borer		
IRAGACA	Periodical cicada		
INASAVA	Plum curculio		
ITBUAPA	Redbanded leafroller		
INBPAUA	Rose chafer		
IRAKBYA	San Jose scale		
IQAMATA	Tarnished plant bug		
ITAXAAA	Tussock moths		
ITBUBBA	Variegated leafroller		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Apricot (continued)		
ITBQALA	Lesser peachtree borer	1 lb/100 gal (50-80% WP) (2-4 lb/gal FlC) or 1 tbls actual*/gal (50% WP) or 0.167-0.334 oz**/gal (2-4 lb/gal FlC) (25% FlC)	Bark application. Apply during appearance of moths in early to late summer. Make 2 or 3 applications at 7 day intervals to main limbs and to trunk from ground to scaffold limbs timed with moth flight.
ISASAAA	Ants	2-2.5 lb/A (5% G) (5% P/T)	Broadcast soil application. Granular formulation may be applied by aircraft.
IVAHAAA	Crickets		
ITBCABA	Cutworms		
IVABAAA	Grasshoppers		
IIFAAEA	Sowbugs		
16002AA	Asparagus		10 ppm 1 day preharvest interval through 2 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft.
ITBCCFA	Armyworm	1-2 lb/A (2-5% D) (50-80% WP) (50% WP/D) (2-5 lb/gal FlC) (42.6% FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC)	Foliar application. Apply to seedlings or spears. Do not repeat application within 3 days.
INAMBDA	Asparagus beetle		
INAMBHA	Corn rootworms		
INAMACA	Cucumber beetle		
ITBCABA	Cutworms		
IQAQAKA	Harlequin bug		
INBPAZA	Japanese beetle		
IQAMARA	Lygus bugs		
IQAQAAA	Stink bugs		
IMOAAAA	Thrips		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Asparagus (continued)		
		or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.039-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (21.5-42.6% FlC)	
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.01-0.015 oz**/0.1 gal /10 ft row (2 lb/gal FlC) or 0.05-0.015 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Asparagus (continued)		
IRAGABA	Apache cicada	2-4 lb/A (2-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.02-0.04 oz/10 ft row (5% D) or 0.02 oz**/0.1 gal/10 ft row (2 lb/gal FlC) 0.2-0.4 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.058-0.308 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Postharvest application. Apply to ferns or brush. Do not repeat application within 3 days
INAMBDA	Asparagus beetle		
ISASAAA	Ants	1-2 lb/A (5% D) (5% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast. For earwigs, apply during cutting season.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

EPA Index to Pesticide Chemicals

CARBARYL

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
6002AA	**Banana**		10 ppm No preharvest interval through 1 pound per acre for foliar application.
TAAAAA	Lepidopterous larvae (caterpillars) *Caligo* sp. *Ceramidia* sp. *Opsiphanes* sp. *Sibine* sp.	1 lb/A (4 lb/gal FlC)	Foliar application. Apply by aircraft after leaf perforation has commenced. Do not exceed 1 application.
8001AA	**Beans**		10 ppm (beans) 100 ppm (forage and hay) No preharvest interval through 2 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft. Observe plant response precautions.
ITBJADA	Alfalfa caterpillar	1 lb/A (1.5-10% D) (50-85% WP) (2-50% WP/D) (2-5 lb/gal FlC) (42.6% FlC) or 0.013-0.02 oz/ 10 ft row (2-10% D) or 0.011 oz**/ 0.1 gal/10 ft row (2 lb/gal FlC) or 0.089-0.133 tbls actual* /0.1 gal/ 100 sq.ft (50-85% WP) (10% WP/D)	Foliar application.
INAMARA	Bean leaf beetle		
ITASAEA	Bean leafroller		
INBGAAA	Blister beetles		
INAMACA	Cucumber beetles		
INAMACA	Flea beetles		
ITBCCCA	Green cloverworm		
IQAQAKA	Harlequin bug		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IRASADA	Threecornered alfalfa hopper		
IMOAAAA	Thrips		
ITBCATA	Velvetbean caterpillar		
ITBCBTA	Western bean cutworm		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Beans (continued)		
		or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-42.6% F1C)	
TBCCFA	Armyworm	1-1.5 lb/A (1.75-10% D) (50-80% WP) (50% WP/D) (2-5 lb/gal F1C) or 0.01-0.02 oz/ 10 ft row (2-10% D) or 0.017 oz**/ 0.1 gal/ 10 ft row (2 lb/gal F1C) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-41.8% F1C)	Foliar application.
TBCBOA	Corn earworm		
TASARA	Cowpea curculio		
NAMBHA	Corn rootworms		
TBCABA	Cutworms		
NBMCCA	European corn borer		
TBCCTA	Fall armyworm		
QAXAAA	Lace bugs		
NAGADA	Pea weevil		
NBJAAA	Sap beetles		
QAQAAA	Stink bugs		
QAMATA	Tarnished plant bug		
TAAAMA	Webworms		
TBCCQA	Yellowstriped armyworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Beans (continued)		
INBGAAA	Blister beetles	0.5-1 lb/A (80% WP) (4 lb/gal FlC) or 1 tbls actual*/gal (80% WP) or 0.25 oz**/gal (4 lb/gal FlC)	Foliar application.
INAPAFA	Mexican bean beetle		
ITBCBOA	Corn earworm	2 lb/A (1.75-10% D) (50-85% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.67-0.266 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Use limited to CA. Foliar application.
ITASARA	Cowpea curculio		
ITBMBFA	Limabean pod borer		
IQAMARA	Lygus bugs		
IQAQAAA	Stink bugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Beans (continued)		
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5% D) or 0.01-0.015 oz**/0.1 gal/10 ft row or 0.05-0.015 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5% F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
INAPAFA	Mexican bean beetle	0.5 lb/A (1.5-10% D) (50-85% WP) (2-50% WP/D) (2-5 lb/gal F1C) (42.6% F1C) or 0.007-0.02 oz/10 ft row (1.75-10% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal F1C)	Foliar application. Apply when egg masses first appear on the underside of the leaves.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Beans (continued)		
		or 0.02-0.1 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) (10% WP/D) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (21.5-42.6% FlC)	
SASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
TBCCFA	Armyworm		
VAHAAA	Crickets		
TBCABA	Cutworms		
NBUAAA	Darkling beetles		
MDAAAA	Earwigs		
VABAAA	Grasshoppers		
JCAAAA	Millipedes		
GDAACA	Slugs		
GDAABA	Snails		
IFAAEA	Sowbugs		

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CARBARYL

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
28002AA	**Beets**		5 ppm (roots) 12 ppm (tops) 3 day preharvest interval (roots) through 2 pounds per acre for foliar and broadcast soil applications. 14 day preharvest interval (tops) through 2 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft.
ITBCCFA	Armyworm	1-2 lb/A (5-7.5% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.029-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-25% F1C)	Foliar application. Where the cabbage looper is the principal problem, use an alternative pesticide specifically recommended for it. For control of small cabbage loopers after edible parts start to form, apply at 5 to 7 day intervals.
INBGAAA	Blister beetle		
ITBCCSA	Cabbage looper		
INAMB[illegible]A	Corn rootworms		
INAMACA	Cucumber beetles		
ITBCABA	Cutworms		
ITBMCCA	European corn borer		
ITBCCOA	Fall armyworm		
INBPAZA	Japanese beetle		
IQAMARA	Lygus bugs		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IMOAAAA	Thrips		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Beets (continued)		
INAMACA IQAQAKA IRAFAAA	Flea beetles Harlequin bug Leafhoppers	0.5-1 lb/A (5-7.5% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-25% FlC)	Foliar application.
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.01-0.015 oz**/0.1 gal/10 ft row (2 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Beets (continued)		
		or 0.05-0.015 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	
ISASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
01002AA	Blackberry		12 ppm 7 day preharvest interval through 2 pounds per acre for foliar application.
01003AA	Boysenberry		
01004AA	Dewberry		
01005AA	Loganberry		
01006AA	Raspberry		
ITBCCZA	Climbing cutworms	2 lb/A (5-10% D) or 0.6 oz/100 ft row (5% D) or 1-2 lb/A (50-80% WP) (50% WP/D) (2-4 lb/gal F1C)	Foliar application. Dust formulations may be applied by aircraft. For Japanese beetle, apply when adults first appear and repeat as needed.
IRACAYA	European raspberry aphid		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IMAAAEA	Leafrollers		
ITBUALA	Orange tortrix		
INBPAUA	Rose chafer		
ISAAABA	Sawflies		
IVAHAGA	Snowy tree cricket		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Blackberry cluster (continued)		
		or 1-2 tbls actual*/gal (50% WP) or 0.167-0.334 oz**/gal (2-4 lb/gal FlC)	
IVABAAA	Grasshoppers	-- (5-10% D)	Foliar application. Apply as needed.
ITBUBCA	Omnivorous leafroller	2 lb/A (80% WP) or 1-2 tbls actual*/gal (50% WP) or 0.334 oz**/gal (2 lb/gal FlC)	Foliar application. For use in CA.
ISBEASA	Raspberry sawfly		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
1009AA	Blueberry		10 ppm No preharvest interval through 2 pounds per acre for foliar application.
OBMAPA	Blueberry fruit fly	1.5-2 lb/A (1.75-10% D) (50-85% WP) (2-5 lb/gal F1C) or 1-2 tbls actual*/gal (50% WP) or 0.125-0.334 oz**/gal (2-5 lb/gal F1C) (10% F1C)	Foliar application. Dust formulations may be applied by aircraft. For blueberry fruit fly, apply 3 weeks before harvest timed with the emergence of adult flies and repeat 10 days later or as needed according to local schedules. For fruitworms and scales, apply immediately after bloom or as soon as pest becomes active and repeat at 10 day intervals until harvest. For Japanese beetle, apply when adults first appear and repeat as needed.
TBGARA	Cherry fruitworm		
TBMAGA	Cranberry fruitworm		
TBCABA	Cutworms		
RAHALA	European fruit lecanium		
NBPAZA	Japanese beetle		
RAFAAA	Leafhoppers		
TBUALA	Orange tortrix		
VABAAA	Grasshoppers	-- (5% D)	Foliar application. Apply as needed.
	Boysenberry	See Blackberry cluster.	

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
13005AA	Broccoli		10 ppm 3 day preharvest interval through 2.1 pounds per acre for foliar application. 3 day preharvest interval through 2 pounds per acre for broadcast soil application. Per acre rates may be applied by aircraft.
13006AA	Brussels Sprouts		
13007AA	Cabbage		
13008AA	Cauliflower		
13012AA	Kohlrabi		
ITBCCFA	Armyworm	0.88-2.1 lb/A (1.75-10% D) (50-85% WP) (10-50% WP/D) (2-5 lb/gal FlC) 0.01-0.054 oz/10 ft row (5-10% D) or 0.017-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.4 tbls actual*/0.1 gal/100 sq.ft (50-80% WP) or 0.039-0.156 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-5 lb/gal FlC) (5-25% FlC)	Foliar application. Where cabbage looper is the principal problem, use an alternative pesticide specifically recommended for it. For control of small cabbage loopers after edible plant parts start to form. Apply at 5 to 7 day intervals as needed.
ITBCCSA	Cabbage looper		
ITBCBOA	Corn earworm		
ITBMBHA	Cross-striped cabbageworm		
ITBWAFC	Diamondback moth (larvae)		
ITBCCOA	Fall armyworm		
ITBJAHA	Imported cabbage worm		
ITABACA	Saltmarsh caterpillar		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Broccoli cluster (continued)		
NAMADA QAQAKA	Flea beetles Harlequin bug	0.44-1.13 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal F1C) or 0.01-0.054 oz/10 ft row (5-10% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.05-0.2 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.019-0.116 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-5 lb/gal F1C) (5-25% F1C)	Foliar application.
VABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-80% WP) (4 lb/gal F1C) or 0.02 oz/10 ft row (5% D)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Broccoli cluster (continued)		
		or 0.017 oz**/ 0.1 gal /10 ft row (2 lb/gal F1C) or 0.05-0.15 tbls actual* /0.1 gal/ 100 sq.ft (50-80% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	
ISASAAA	Ants	2 lb/A (5% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets (including field crickets)		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
ITBCABA	Cutworms	2 lb/A or 0.074 oz/100 sq.ft (10% G)	Preplant broadcast soil application. Disk or work into top 3 to 4 inches of soil before planting. Use not registered on Kohlrabi.
	Brussels Sprouts	See Broccoli cluster.	
	Cabbage	See Broccoli cluster.	
	Cantaloupe	See Melons.	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
28073AA	Carrots		10 ppm No preharvest interval through 2 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft.
IRAFAVA	Aster leafhopper	1-1.5 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.017 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.15 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.039-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Repeat at 5 to 7 day intervals.
IQAMARA	Lygus bugs		
IRAEAAA	Spittlebugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Carrots (continued)		
ITBCCFA	Armyworm	1-2 lb/A (1.75-10% D) (50-80% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.039-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-41.8% FlC)	Foliar application. Where the cabbage looper is the principal problem, use an alternative pesticide specifically recommended for it. For control of small cabbage loopers after edible plant parts start to form, apply at 5 to 7 day intervals.
INBGAAA	Blister beetles		
ITBCCSA	Cabbage looper		
INAMACA	Cucumber beetles		
ITBCABA	Cutworms		
INBPAZA	Japanese beetle		
IQAMARA	Lygus bugs		
IRAEAAA	Spittlebugs		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IMOAAAA	Thrips		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Carrots (continued)		
INAMADA IRAFAAA	Flea beetles Leafhoppers	0.5-1 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-41.8% FlC)	Foliar application.
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-85% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal/10 ft row (2 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Carrots (continued)		
		or 0.05-0.15 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
ISASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
	Casaba Melons		See Melons.
	Cauliflower		See Broccoli cluster.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
28003AA	**Celery**		10 ppm 14 day preharvest interval through 2 pounds per acre for foliar application. Per acre rates may be applied by aircraft.
ITBCCFA ITBCBOA ITBCCOA IQAQAAA IQAMATA	Armyworm Corn earworm Fall armyworm Stink bugs Tarnished plant bug	1-2 lb/A (80% WP) (4 lb/gal F1C) or 1 tbls actual*/gal (80% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (4 lb/gal F1C)	Foliar application.
IRAFAVA IQAMARA IRAEAAA	Aster leafhopper Lygus bugs Spittlebugs	1-1.5 lb/A (80% WP) (4 lb/gal F1C) or 1 tbls actual*/gal (80% WP) or 0.039-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (4 lb/gal F1C)	Foliar application. Repeat at 5 to 7 day intervals.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Celery (continued)		
INAMADA IRAFAAA	Flea beetles Leafhoppers	0.5-1 lb/A (80% WP) (4 lb/gal FlC) or 1 tbls actual*/gal (80% WP) or 0.019-0.039 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (4 lb/gal FlC)	Foliar application.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
5002AA	Cherry		10 ppm 1 day preharvest interval through 6 pounds per acre for foliar or bark application. 1 day preharvest interval through 2.5 pounds per acre for broadcast soil application.
RACAAA	Aphids		
OBMAQA	Apple maggot	3-6 lb/A (5-10% D) (5% WP/D) or 1 lb/100 gal or 3-6 lb/A (50-85% WP) (50% WP/D) (2-5 lb/gal F1C) or 1 tbls actual*/gal (50-85% WP) or 0.5 tbls actual*/gal (5% WP/D) or 0.125-0.334 oz**/gal (2-5 lb/gal F1C) (25-41.8% F1C)	Foliar application. Dust formulations may be applied by aircraft. For scale control, apply when crawlers are present. For oriental fruit moth and plum curculio, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved.
TBUBAA	Apple pandemis		
RACCSA	Black cherry aphid		
RAHAGA	Brown soft scale		
QAAABA	Catfacing insects		
OBMALA	Cherry fruit fly		
TBGARA	Cherry fruitworm		
TBCCUA	Citrus cutworm		
INAMACA	Cucumber beetles		
ITAUAEA	Eastern tent caterpillar		
IMDCABA	European earwig		
ITBGBOA	Eyespotted bud moth		
IRAKBVA	Forbes scale		
ITBUAGA	Fruittree leafroller		
ITBCBSA	Green fruitworm		
INBPAZA	Japanese beetle		
INBPADA	June beetle		
IRAFAAA	Leafhoppers		
IRAHAJA	Lecanium scales		
IRACCAA	Mealy plum aphid		
IRAKBPA	Olive scale		
IOBMAFA	Oriental fruit moth		
IRAKBHA	Oystershell scale		
ITAMABA	Peach twig borer		
IRAGACA	Periodical cicada		
INASAVA	Plum curculio		
IRAFAGA	Prune leafroller		
ITBUAPA	Redbanded leafroller		
INBPAUA	Rose chafer		
IRAKBYA	San Jose scale		
IQAMATA	Tarnished plant bug		
ITAXAAA	Tussock moths		
ITBUBBA	Variegated leafroller		

CARBARYL

Cherry cluster (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
TBGAZA TAUAEA TBUALA TAXAAA TAXAFA	Codling moth Eastern tent caterpillar Orange tortrix Tussock moths Western tussock moth	3-6 lb/A (5-10% D) or 0.75 lb/100 gal or 3-6 lb/A (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.75-1 tbls actual*/gal (50-85% WP) or 0.094-0.25 oz**/gal (2-5 lb/gal FlC) (25% FlC)	Foliar application. Dust formulations may be applied by aircraft. For codling moth, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved.
ITBQALA	Lesser peachtree borer	3.5-4 lb/A (5% D) (5% WP/D) or 1 lb/100 gal (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 1 tbls actual*/gal (50% WP) or 0.5 tbls actual*/gal (5% WP/D) or 0.125-0.334 oz**/gal (2-4 lb/gal FlC) (25-41.8% FlC)	Bark application. Apply during appearance of moths in early to late summer. Make 2 or 3 applications at 7 day intervals to lower limbs and to trunk from ground to scaffold limbs timed with moth flight.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Cherry cluster (continued)		
ITBQAHA	Peachtree borer	1 tbls actual*/gal (50% WP)	Bark application. Apply during appearance of moths in early to late summer. Make 2 or 3 applications at 7 day intervals to trunk from scaffold limbs to ground timed with moth flight.
ISASAAA IVAHAAA ITBCABA IVABAAA IIFAAEA	Ants Crickets Cutworms Grasshoppers Sowbugs	2-2.5 lb/A (5% G) (5% P/T)	Broadcast soil application. Granular formulation may be applied by aircraft.
13010AA	Chinese Cabbage		10 ppm 14 day preharvest interval through 2 pounds per acre for foliar and broadcast soil application. Per acre rates may be applied by aircraft.
ITBCCFA ITBCCSA ITBCBOA ITBMBHA ITBWAFC ITBCCTA ITBJAHA IQAQAAA IQAMATA	Armyworm Cabbage looper Corn earworm Cross-striped cabbage worm Diamondback moth (larvae) Fall armyworm Imported cabbageworm Stink bugs Tarnished plant bug	1-2 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.017-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50-80% WP)	Foliar application. Where cabbage looper is the principal problem, use an alternative pesticide specifically recommended for it. For control of small cabbage loopers after edible plant parts start to form. Apply at 5 to 7 day intervals as needed.

Site and Pest		Dosages and Formulation(s)	Tolerance, Use, Limitations
Chinese Cabbage (continued)			
		or 0.039-0.116 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
RAFAVA	Aster leafhopper	1-1.5 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/ 10 ft row (5% D) or 0.017 oz**/ 0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.15 tbls actual*/0.1 gal/100 sq.ft (50-80% WP) or 0.039-0.116 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Repeat at 5 to 7 day intervals.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Chinese Cabbage (continued)		
INAMADA	Flea beetles	0.5-1.13 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01 oz/10 ft row (5% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.05-0.125 tbls actual*/0.1 gal/100 sq.ft (50-80% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application.
IQAQAKA	Harlequin bug		
IRAFAAA	Leafhoppers		
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (4 lb/gal F1C) or 0.02 oz/10 ft row (5% D) or 0.017 oz**/0.1 gal/10 ft row (2 lb/gal F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Chinese Cabbage (continued)		
		or 0.05-0.015 tbls actual* /0.1 gal/ 100 sq.ft (50-80% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
ITBCCFA	Armyworm	2 lb/A (5% G)	Broadcast soil application.
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IVABAAA	Grasshoppers		
IIFAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
02000AA	**Citrus Fruits**		10 ppm 5 day preharvest interval through 1 pound per 100 gallons of water or 20 pounds for per acre foliar application. Do not apply more than 2,000 gallons of finished spray per acre. No preharvest interval through 2.5 pounds per acre for broadcast soil application. Treated pulp may be fed to dairy and meat animals.
ITAPAFA	Avocado leafroller	1 lb/100 gal (50-85% WP) (2-4 lb/gal FlC) or 1 tbls actual*/gal (50% WP) or 0.125-0.167 oz**/gal (2 lb/gal FlC) (10-25% FlC)	Foliar application. Apply only in full cover sprays. May be tank mixed with petroleum oils commonly used on citrus. Do not apply less than 10 gallons of finished spray per mature tree.
ITBHAHA	California orangedog		
ITBCCUA	Citrus cutworm		
INASCUA	Citrus root weevil		
INAMACA	Cucumber beetles		
ITBUAGA	Fruittree leafroller		
ITBUALA	Orange tortrix		
INASFAA	Sugarcane rootstalk borer weevil		
ITAXAFA	Western tussock moth		
IRAHBBA	Black scale	0.75-1 lb/100 gal (50-80% WP) (2-4 lb/gal FlC) or 1 tbls actual* (50% WP) or 0.125-0.167 oz**/gal (2 lb/gal FlC) (10-25% FlC)	Foliar application. Apply only in full cover sprays. May be tank mixed with petroleum oils commonly used on citrus. Apply low dosage early in the season or against light infestations. Apply high dosage late in the season or against heavy infestations and situations involving infested fruit. Do not apply less than 10 gallons of finished spray per mature tree.
IRAHAGA	Brown soft scale		
IRAKAEA	California red scale		
IRAHAHA	Citricola scale		
IRAKBZA	Citrus snow scale		
IRAKBYA	San Jose scale		
IRAKAFA	Yellow scale		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Citrus Fruits (continued)		
ISASAAA	Ants	2-2.5 lb/A (5% G) (5% P/T)	Broadcast soil application. Granular formulation may be applied by aircraft.
IVAHAAA	Crickets		
ITBCABA	Cutworms		
IVABAAA	Grasshoppers		
IIFAAEA	Sowbugs		
02000DA	Citrus (nonbearing stock)		
IRAHAGA	Brown soft scale	4-8 lb/A (10% D) or 1 tbls actual*/gal (50% WP)	Foliar application. Dust formulation may be applied by aircraft. Apply to nonbearing trees or to mature trees with no fruit present. For lepidopterous insects, apply when young larvae are present.
ITBCCUA	Citrus cutworm		
ITBUAGA	Fruittree leafroller		
ITBUALA	Orange tortrix		
ITAXAFA	Western tussock moth		
23003AA	Clover		100 ppm No preharvest interval through 1.6 pounds per acre for foliar application. No preharvest interval through 1.78 pounds per acre for ultra low volume foliar application. No preharvest interval through 1.5 pounds per acre for broadcast soil application. Observe plant response precautions.
ITBJADA	Alfalfa caterpillar	0.88-1.13 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (4-5 lb/gal FlC)	Foliar application.
INAMARA	Bean leaf beetle		
INAMACA	Cucumber beetles		
ITBCCCA	Green cloverworm		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IRASADA	Threecornered alfalfa hopper		
IMOAAAA	Thrips		
ITBCATA	Velvetbean caterpillar		
ITBCCQA	Yellowstriped armyworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Clover (continued)		
NASBWS	Alfalfa weevil (larvae)	0.88-1.56 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (4-5 lb/gal F1C)	Foliar application.
TBCCFA	Armyworm		
NASBUA	Clover head weevil		
TBCBOA	Corn earworm		
TBCABA	Cutworms		
NASBTC	Egyptian alfalfa weevil (larvae)		
TBCCTA	Fall armyworm		
QAMARA	Lygus bugs		
QAQAAA	Stink bugs		
TAAAMA	Webworms		
NASBUC	Alfalfa weevil (larvae)	0.5-1 lb/A (50% WP) (4 lb/gal F1C)	Foliar application. For use in CO, ID, NE, NV, and OR.
INBGAAA	Blister beetles	0.44-1.13 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (4-5 lb/gal F1C)	Foliar application.
INAPAFA	Mexican bean beetle		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Clover (continued)		
IVABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (4 lb/gal F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
		0.59-1.78 lb/A (3.8-4 lb/gal F1C) (3.8-4 lb/gal RTU)	Ultra low volume or low volume foliar application. Apply the lower rate for nymphs on small plants or sparse vegetation and the higher rate when grasshoppers are mature or vegetation is thick. May be applied by aircraft undiluted or diluted with diesel fuel, number 2 fuel oil, or kerosene. May be applied by ground mist blowers or cold fogging when diluted with aliphatic compounds mentioned above. Refer to manufacturer's directions for additional information on dilution rates, nozzles, and calibration. Do not mix with alchol, water, or aromatic solvents. Do not mix with fertilizers. Formulated with petroleum distillate.
ISASAAA	Ants	1.5 lb/A (5% D) (5% P/T)	Broadcast soil application.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IVABAAA	Grasshoppers		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
3009AA 3011AA 3021AA 3026AA	Collards Kale Mustard (greens) Turnips (greens)		12 ppm 14 day preharvest interval through 2 pounds per acre for foliar and broadcast soil application. Per acre rates may be applied by aircraft.
TBCCFA	Armyworm	1-2 lb/A (2-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.4 tbls actual*/100 sq.ft [0.1-0.23 gal/100 sq.ft] (50-80% WP) or 0.23-0.46 oz**/gal/100 sq.ft (2-4 lb/gal FlC)	Foliar application. Where cabbage looper is the principal problem, use an alternative pesticide specifically recommended for it. For control of small cabbage looper after edible plant parts start to form. Apply at 5 to 7 day intervals.
TBCCSA	Cabbage looper		
TBCBOA	Corn earworm		
TBMBHA	Cross-striped cabbageworm		
TBWAFC	Diamondback moth (larvae)		
TBCCTA	Fall armyworm		
TBJAHA	Imported cabbage worm		
QAQAAA	Stink bugs		
QAMATA	Tarnished plant bug		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Collards cluster (continued)		
RAFAVA	Aster leafhopper	1-1.74 lb/A (2-10% D) or 1-1.54 lb/A (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/ 10 ft row (5% D) or 0.017 oz**/ 0.1 gal/10 ft row (2 lb/gal F1C) or 0.1-0.15 tbls actual*/100 sq.ft [0.1-0.23 gal /100 sq.ft] (50-80% WP) or 0.039-0.116 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application. Repeat at 5 to 7 day intervals.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Collards cluster (continued)		
MACA	Flea beetles	0.5-1.13 lb/A (2-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/ 10 ft row (5-10% D) or 0.011 oz**/ 0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.2 tbls actual*/100 sq.ft [0.1-0.25 gal/ 100 sq.ft] (50-80% WP) or 0.019-0.116 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application.
QAKA	Harlequin bug		
FAAA	Leafhoppers		
ABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (4 lb/gal FlC) or 0.02 oz/ 10 ft row (5% D) or 0.017 oz**/ 0.1 gal /10 ft row (2 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Collards cluster (continued)		
		or 0.05-0.015 tbls actual* /0.1 gal/ 100 sq.ft (50-80% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
BCCFA	Armyworm	2 lb/A (5% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
AHAAA	Crickets		
BCABA	Cutworms		
BUAAA	Darkling beetles		
ABAAA	Grasshoppers		
CAAAA	Millipedes		
DAACA	Slugs		
DAABA	Snails		
FAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
8005AA	Corn Field, Pop, Sweet		5 ppm fresh (including sweet) kernel and cob with husks removed. 100 ppm (fodder and forage) No preharvest interval through 2.1 pounds per acre for foliar application. No preharvest interval through 2 pounds per acre for band soil application. No preharvest interval through 6.5 pounds per acre for broadcast soil application. Application of carbaryl to the tassel region on the corn during the pollen shedding period will seriously reduce bee populations. Per acre rates may be applied by aircraft.
TBCCFA TBCBOA NAMBHA TBCABA NBMCCA TBCCTA NAMADA NBPAZA RAFAAA NBJAAA QAQAAA TBMAYA	Armyworm Corn earworm Corn rootworms (adults) Cutworms European corn borer (including larvae) Fall armyworm Flea beetle Japanese beetle Leafhoppers Sap beetles Stink bugs Southwestern corn borer	0.88-2.1 lb/A (1.75-10% D) (50-85% WP) (2-50% WP/D) (2-5 lb/gal FlC) or 0.01-0.054 oz/10 ft row (5-10% D) or 0.055-0.08 oz/100 sq.ft (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.067-0.45 tbls actual* /100 sq.ft [0.1-0.13 gal/100 sq.ft] (50-85% WP)	Foliar application. For larvae in the whorl and foliar feeders, apply to entire plant. Consult the State Agricultural Extension Service for proper timing of applications. Repeat as needed. For insects attacking silks and ears, apply at 1 to 6 day intervals starting when silks first appear and continuing until silks begin to dry. Three or more applications may be required depending on severity of infestation. Timing and good coverage are essential for effective control. When using homeowner dosages for budworm damage, apply thoroughly into the whorls when plant is about knee high. Repeat at 7 day intervals as needed. For dust formulations, reapply immediately after rain.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Corn Field, Pop, Sweet (continued)		
		or 0.12 oz/gal (2% WP/D) or 0.019-0.155 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-5 lb/gal FlC) (5-25% FlC)	
QALAFA	Chinch bug	1-2 lb/A or 0.022 oz**/ 0.1 gal/10 ft row or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2 lb/gal FlC)	Foliar application. Use high gallonage ground application directed at the base of plants.
ITBCABA	Cutworms	2 lb/A or 3-3.2 oz/ 1,000 ft row [12 in band] or 6.4-6.5 lb/A [broadcast] (50-80% WP) (2-4 lb/gal FlC)	Foliar application. For 12 inch band, apply in a minimum of 15 gallons of water per acre. For broadcast application, apply by aircraft in a minimum of 5 gallons of water per acre or in a minimum of 20 gallons of water per acre by ground equipment.
INBMCCA	European corn borer (including larvae)	1.5-2 lb/A (5-15% G)	Foliar application. Apply directly into whorls of plants when damage from first generation larvae threatens. Consult local Cooperative Agricultural Extension Service for proper timing of applications.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Corn Field, Pop, Sweet (continued)		
IVABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-80% WP) (4 lb/gal F1C) or 0.02 oz/ 10 ft row (5% D) or 0.017 oz**/ 0.1 gal /10 ft row (2 lb/gal F1C) or 0.05-0.015 tbls actual* /0.1 gal/ 100 sq.ft (50-80% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5% F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
ITBCBTA	Western bean cutworm	2 lb/A (10% D) (80% WP) (2-4 lb/gal F1C) or 0.011 oz**/ 0.1 gal /10 ft row (2 lb/gal F1C)	Foliar application. Apply when infestation averages 15 percent and 90 to 100 percent tassel emergence. Treatment after 100 percent silk emergence will reduce effectiveness.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Corn Field, Pop, Sweet (continued)		
		or 0.2 tbls actual*/0.1 gal/100 sq.ft (80% WP) or 0.077-0.116 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2 lb/gal FlC)	
INAMBOA	Western corn rootworm (adults)	0.75 lb/A (2 lb/gal FlC) (2 lb/gal RTU)	Use limited to the North Central States. Foliar application. Apply by aircraft or ultra low volume ground application. Repeat in 7 days as needed.
ITBCBOA	Corn earworm	2 lb/A (80% WP)	Center pivot irrigation application. Apply when first silks appear. If local populations warrant, make a second application 5 to 7 days after the first. Optimum timing is essential for effective control.
INAMBHJ	Corn rootworms (adults)	2 lb/A (80% WP)	Center pivot irrigation application. Repeat as needed.
IVABAAA	Grasshoppers		
ITBMCCA	European corn borer (including larvae)	2 lb/A (80% WP)	Center pivot irrigation application. Repeat as needed. Optimum timing is essential for effective control.
ITBMAYA	Southwestern corn borer		
ITBCBTA	Western bean cutworm	2 lb/A (80% WP)	Center pivot irrigation application. Make 2 applications, the first at 60 percent egg hatch and the second at 98 percent egg hatch. Optimum timing is essential for effective control.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Corn Field, Pop, Sweet (continued)		
ISASAAA	Ants	2 lb/A (5% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets (including field crickets)		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
INAMBHC	Corn rootworms (larvae)	1.5 lb/A or 0.022 oz/ 10 ft row (10% D)	Band soil application. Apply in a 5 to 7 inch band over row at time of planting.
28007AA	Cotton		5 ppm (cottonseed) 100 ppm (forage) No preharvest interval through 2.63 pounds per acre for foliar application. No preharvest interval through 1.5 pounds per acre for broadcast soil application. To avoid staining lint, do not apply spray formulations containing molasses after bolls have opened. May be applied by aircraft. For concentrate dust applications by aircraft, use standard venturi-type equipment with spreader vanes or swathmaster type spreaders. Fly at normal height (4 to 6 feet above plant tops) and maintain regular swath width (30 to 35 feet). For ground equipment, use tractor mounted power dusters with a metering device that feeds the concentrate dust through 1 nozzle per row (with deflector) or similarly designed electronic dusters.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Cotton (continued)		
IRACAAA	(Aphids)	0.5-2.63 lb/A (5-20% D) (80-85% WP) (1.6-4 lb/gal F1C) (4 lb/gal F1C) or 0.5-2.5 lb/A [concentrate dust] (25-50% D)	Foliar application. Claims for control are limited to population suppression with repeated applications.
ITBCCFA INASAHA ITBCBOA ITAYAHA ITBCCTA IRAFAAA IMAAAEA IQAMARA IQAMATA ITBCCQA	Armyworm Boll weevil Bollworm Cotton leafperforator Fall armyworm Leafhoppers Leafrollers Lygus bugs Tarnished plant bug Yellowstriped armyworm (cotton cutworm)	1-2.13 lb/A (5-20% D) (80-85% WP) (1.6-4 lb/gal F1C) (4 lb/gal RTU) or 1-2 lb/A [concentrate dust] (25-50% D)	Foliar application. For light to moderate infestations of lygus bugs in Western irrigated cotton. For mid to late season control of all other pests. Repeat application at 5 to 7 day intervals as needed. For improved bollworm control with wettable powder and flowable concentrate formulations, substitute 1 gallon of blackstrap molasses (feed grade) for 1 gallon on water in the finished spray per acre. Do not exceed 20 gallons of finished spray per acre.
IQAMAYA ITBCAOA INAMADA INBGAIA IMOAAAA	Cotton fleahopper Cotton leafhopper Flea beetles Striped blister beetle Thrips	0.5-1.13 lb/A (5-20% D) (80-85% WP) (2-4 lb/gal F1C) (4 lb/gal RTU) or 0.5-1 lb/A [concentrate dust] (25-50% D)	Foliar application. For early season control of cotton fleahopper, flea beetles, and thrips.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Cotton (continued)		
ABAAA	Grasshoppers	0.5-1.52 lb/A (5-10% D) (80-85% WP) (2-4 lb/gal F1C) (4 lb/gal RTU) or 0.5-1.5 lb/A [concentrate dust] (25-50% D)	Foliar application. Apply lower half of the dosage range for control of nymphs or small plants and upper half of the dosage range for control of adults or when plants are partially defoliated.
AMAOA	Pink bollworm	1.5-2.63 lb/A (5-20% D) (80-85% WP) (1.6-4 lb/gal F1C) (4 lb/gal RTU) or 1.5-2.5 lb/A [concentrate dust] (50% D)	Foliar application. Repeat application at 5 to 7 day intervals as needed.
TABACA QAQAAA	Saltmarsh caterpillar Stink bugs	1-2.5 lb/A (5-10% D) or 2-2.13 lb/A (80-85% WP) (1.6-4 lb/gal F1C) or 1-2 lb/A (4 lb/gal RTU) or 1-2.5 lb/A [concentrate dust] (25-50% D)	Foliar application.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Cotton (continued)		
ISASAAA	Ants	1.5 lb/A (5% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets (including field crickets)		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IVABAAA	Grasshoppers		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
15008AA	Cowpeas		5 ppm (peas) 100 ppm (forage, hay) No preharvest interval through 2 pounds per acre for foliar application. Observe plant response.
ITBJADA	Alfalfa caterpillar	0.88-1.13 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (4-5 lb/gal F1C)	Foliar application.
INAMARA	Bean leaf beetle		
ITASAEA	Bean leafroller		
INAMACA	Cucumber beetles		
INAMADA	Flea beetles		
ITBCCCA	Green cloverworm		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IRASADA	Threecornered alfalfa hopper		
IMOAAAA	Thrips		
ITBCATA	Velvetbean caterpillar		
ITBCCFA	Armyworm	0.88-1.56 lb/A (1.75-10% D) (50-80% WP) (50% WP/D) (4-5 lb/gal F1C)	Foliar application.
ITBCBOA	Corn earworm		
ITBCABA	Cutworms		
IQAQAAA	Stink bugs		
ITAAAMA	Webworms		
INBGAAA	Blister beetles	0.44-1.13 lb/A (1.75-10% D) (50-80% WP) (50% WP/D) (4-5 lb/gal F1C)	Foliar application.
INAPAFA	Mexican bean beetle		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Cowpeas (continued)		
ITBCBOA ITBMBFA IQAMARA IQAQAAA	Corn earworm Limabean pod borer Lygus bugs Stink bugs	1.825-2 lb/A (5-10% D) (80% WP)	Foliar application.
INASARA	Cowpea curculio	2 lb/A (5-10% D) (50-80% WP) (50% WP/D)	Foliar application. Make 4 applications beginning at first bloom and at 5 day intervals thereafter.
IVABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (4 lb/gal F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
01010AA	Cranberry		10 ppm 1 day preharvest interval through 4 pounds per acre of dust formulations or 3 pounds per acre of spray formulations for foliar applications. May kill shrimp or crabs. Do not apply where these are important resources.
ITBCCZA ITAAAKA ITBMAGA INBPAZA IRAFAAA INBPAUA IQAQAAA INASAKA	Climbing cutworms Cranberry fireworms Cranberry fruitworm Japanese beetle Leafhoppers Rose chafer Stink bugs Strawberry weevil	1-3 lb/A (1.75-10% D) or 1.5-4 lb/A (7.5-10% D) or 1.5-3 lb/A) (50-85% WP) (2-5 lb/gal F1C) or 0.5-1 tbls actual*/gal (50% WP) or 0.078-0.5 oz**/gal/ (2-5 lb/gal F1C) (10% F1C)	Foliar application. Dust formulation may be applied by aircraft. Apply in late bloom and as needed at 7 to 10 day intervals.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Crenshaw Melons		See Melons.
10010AA	Cucumber		10 ppm No preharvest interval through 1 pound per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft. Repeat at 7 to 10 day intervals as needed. Avoid excessive applications. Observe plant response precautions.
ITBCCFA	Armyworm	1 lb/A (1.75-10% D) (50-80% WP) (2-50% WP/D) (2-5 lb/gal FlC) (42.6% FlC) or 0.01 oz/ 10 ft row (5-10% D) or 0.011 oz**/ 0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.029-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-42.6% FlC)	Foliar application.
ITBCCSA	Cabbage looper		
INAMCFA	Colorado potato beetle		
INAMBHA	Corn rootworms		
INAMACA	Cucumber beetles		
ITBCABA	Cutworms		
ITBCCTA	Fall armyworm		
INAMADA	Flea beetle		
IQAQAKA	Harlequin bug		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IQAMARA	Lygus bugs		
IQAGAFA	Squash bug		
ITBQADA	Squash vine borer		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IMOAAAA	Thrips		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Cucumber (continued)		
IVABAAA	Grasshoppers	0.5-1 lb/A (5-10% D) (50-85% WP) (2-4 lb/gal FlC) or 0.01 oz/ 10 ft row (5-10% D) or 0.01 oz**/ 0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Cucumber (continued)		
ITBMAUA	Melonworm	0.5-1 lb/A (1.75-10% D) (50-85% WP) (2-50% WP/D) (2-5 lb/gal F1C) (42.6% F1C) or 0.01 oz/ 10 ft row (2-10% D) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-42.6% lb/ gal F1C)	Foliar application.
ITBMAWA	Pickleworm		
ISASAAA	Ants	1 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
13014AA	**Dandelion**		12 ppm 14 day preharvest interval through 2 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft. Observe plant response precautions.
ITBCCFA	Armyworm	1-2 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Where the cabbage looper is the principal problem, use an alternative pesticide specifically recommended for it. For control of small cabbage loopers after edible plant parts start to form. Apply at 5 to 7 day intervals.
ITBCCSA	Cabbage looper		
INAMACA	Cucumber beetles		
ITBCABA	Cutworms		
INBPAZA	Japanese beetle		
IQAQAAA	Stink bugs		
IMOAAAA	Thrips		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Dandelion (continued)		
RAFAVA	Aster leafhopper	1-1.5 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.017 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.1-0.15 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application. Repeat at 5 to 7 day intervals.
NAMADA RAFAAA	Flea beetles Leafhoppers	0.5-1 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01 oz/10 ft row (5% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal F1C)	Foliar application.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Dandelion (continued)		
		or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
TBCCFA	Armyworm	1-2 lb/A	Soil application. Broadcast application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
VAHAAA	Crickets	(5% G)	
TBCABA	Cutworms		
NBUAAA	Darkling beetles		
VABAAA	Grasshoppers		
IFAAEA	Sowbugs		
	Dewberry		See Blackberry cluster.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
11001AA	**Eggplant**		10 ppm No preharvest interval through 4 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft. Repeat at 7 to 10 day intervals.
ITBCCFA	Armyworm	1-2 lb/A (1.75-10% D) (50-80% WP) (5-50% WP/D) (2-5 lb/gal FlC) or 1-4 lb/A (5-10% D) (5% P/T) (4 lb/gal FlC) or 0.01-0.02 oz/ 10 ft row (5-10% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.089-0.266 tbls actual* /0.1 gal/ 100 sq.ft (50-85% WP) or 0.039-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-42.6% FlC)	Foliar application.
INBGAAA	Blister beetles		
INAMBHA	Corn rootworms		
INAMACA	Cucumber beetles		
ITBMCCA	European corn borer		
ITBCCTA	Fall armyworm		
IQAQAKA	Harlequin bug		
INBPAZA	Japanese beetle		
IQAXAAA	Lace bugs		
IQAMARA	Lygus bugs		
INAPAFA	Mexican bean beetle		
IQAMAAA	Plant bugs		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IMOAAAA	Thrips		
ITBCBOA	Tomato fruitworm		
ITBRAJA	Tomato hornworm		
ITAMANA	Tomato pinworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Eggplant (continued)		
NAMCFA	Colorado potato beetle	0.5-1 lb/A (1.75-10% D) (50-80% WP) (5-50% WP/D) (2-5 lb/gal FlC) (42.6% FlC) or 0.01-0.02 oz/10 ft row (2-10% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.044-0.133 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-42.6% FlC)	Foliar application.
NAMACA	Flea beetles		
RAFAAA	Leafhoppers		
ITBCABA	Cutworms	2 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal FlC) or 0.022 oz//0.1 gal/10 ft row (2 lb/gal FlC)	Foliar application.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Eggplant (continued)		
		or 0.2 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.077-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	
VABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal/10 ft row or 0.05-0.015 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Eggplant (continued)		
SASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
TBCCFA	Armyworm		
VAHAAA	Crickets		
TBCABA	Cutworms		
NBUAAA	Darkling beetles		
MDAAAA	Earwigs		
VABAAA	Grasshoppers		
JCAAAA	Millipedes		
GDAACA	Slugs		
GDAABA	Snails		
IFAAEA	Sowbugs		
3015AA	**Endive (Escarole)**		10 ppm 14 day preharvest interval through 2 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft. Observe plant response precautions.
TBCCFA	Armyworm	1-2 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/ 10 ft row (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50% WP)	Foliar application. Where the cabbage looper is the principal problem, use an alternative pesticide specifically recommended for it. For control of small cabbage loopers after edible plant parts start to form. Apply at 5 to 7 day intervals.
TBCCSA	Cabbage looper		
TBCBOA	Corn earworm		
TBCABA	Cutworms		
TBJAHA	Imported cabbageworm		
NBPAZA	Japanese beetle		
QAMARA	Lygus bugs		
QAQAAA	Stink bugs		
QAMATA	Tarnished plant bug		
MOAAAA	Thrips		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Endive (Escarole) (continued)		
RAFAVA	Aster leafhopper	1-1.5 lb/A (5-7.5% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.017 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.1-0.15 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application. Repeat at 5 to 7 day intervals.
QAMARA	Lygus bugs		
RAEAAA	Spittlebugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Endive (Escarole) (continued)		
INAMACA	Flea beetles	0.5-1 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (10% F1C)	Foliar application.
IQAQAKA	Harlequin bug		
IRAFAAA	Leafhoppers		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Endive (Escarole) (continued)		
VABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal F1C) or 0.01-0.02 oz/ 10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal /10 ft row (2 lb/gal F1C) or 0.05-0.015 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
ISASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
3005AA	**Filbert**		1 ppm No preharvest interval through 5 pounds per acre for foliar application.
RACCPA TBUBIA TBGBBA TBUAGA	Filbert aphid Filbert leafroller Filbertworm Fruittree leafroller	4-5 lb/A (5-10% D) or 1 lb/100 gal [400 gal/A] or 4-5 lb/A (50-85% WP) (4 lb/gal FlC) or 1 tbls actual*/gal (50% WP) or 0.125-0.167 oz**/gal (2 lb/gal FlC) (10-25% FlC)	Foliar application. Dust formulations may be applied by aircraft. Apply when leafroller eggs are hatching. Repeat on first appearance of adult filbertworms and again 21 to 28 days later.
	Grapefruit		See Citrus Fruits.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
014AA	**Grapes**		10 ppm No preharvest interval through 2 pounds per acre for foliar application. No preharvest interval through 2.5 pounds per acre for broadcast soil application. May be used on wild or cultivated plants.
BCABA	Cutworms	0.8-2 lb/A (1.75-10% D) (5% WP/D) or 0.8 oz/100 ft row (5% D) or 2 lb/A (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.5-2 tbls actual*/gal (50-85% WP) or 0.5 tbls actual*/gal (5% WP/D) or 0.167-0.334 oz**/gal (2-5 lb/gal FlC) (25% FlC)	Delayed dormant and foliar application. Dust formulations may be applied by aircraft. Make first application just before blooms open, second just after bloom, third 10 days later and thereafter at 14 day intervals. For Japanese beetle, apply when adults first appear and repeat as needed.
BCAPA	Eightspotted forester		
BGBDA	Grape berry moth		
BPAZA	Japanese beetle		
BPADA	June beetle		
BUBCA	Omniverous leafroller		
BUALA	Orange tortrix		
BUAPA	Redbanded leafroller		
ABACA	Saltmarsh caterpillar		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Grapes (continued)		
HALA	European fruit lecanium	0.6-2 lb/A (1.5-10% D) (5% WP/D) or 0.4-0.8 oz/100 ft row (5% D) or 1-2 lb/A (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.5-2 tbls actual*/gal (50-85% WP) 0.5 tbls actual*/gal (5% WP/D) or 0.078-0.334 oz**/gal (2-5 lb/gal FlC) (25% FlC)	Foliar application. Dust formulations may be applied by aircraft. For grape leaffolders, apply just before first brood larvae emerge from rolls. Apply at 7 day intervals as needed for second and third broods. Apply as needed for leafhoppers. Thorough coverage is essential.
MADA	Flea beetles		
3MATA	Grape leaffolder		
AFAOA	Grape leafhopper		
3XACA	Western grapeleaf skeletonizer		
BCCRA	Western yellow-striped armyworm		
VABAAA	Grasshoppers	-- (5-10% D)	Foliar application. Apply as needed.
SASAAA	Ants	1.25-2.5 lb/A (5% G) (5% P/T)	Broadcast soil application. Granular formulation may be applied by aircraft.
VAHAAA	Crickets		
TBCABA	Cutworms		
MDAAAA	Earwigs		
VABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IIFAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
2001AA	Grass (Hay)		100 ppm (grass and hay)
1001BA	Grass (seed crop)		No preharvest interval through 2 pound per acre for foliar application. May be applied by aircraft.
TBCCFA	Armyworm	0.88-1.5 lb/A (1.75-10% D) (50-85% WP) (4-5 lb/gal F1C)	Foliar application. To control thrips in grasses grown for seed, use high spray pressure to improve penetration into boot.
QAMAJA	Black grass bug		
QALAFA	Chinch bug		
TBCBOA	Corn earworm		
TASAIA	Essex skipper		
TBCCTA	Fall armyworm		
NBPAZA	Japanese beetle		
RAFAAA	Leafhoppers		
NAPAFA	Mexican bean beetle		
TBNAJA	Range caterpillars		
OBNACA	Range crane fly		
QAQAAA	Stink bugs		
TBCDBA	Striped grass loopers		
MOAAAA	Thrips		
TBCATA	Velvetbean caterpillar		
VABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-80% WP) (4 lb/gal F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
NBPALC	Green june beetle (larvae)	1.5-2 lb/A (50-80% WP) (4 lb/gal F1C)	Foliar application.
QAMAAJ	Mosquitoes (adults)	0.25-0.5 lb/A (10% D)	Foliar application. For airblast duster application only. Thorough coverage is required for effective control. Apply in early morning or evening when air is calm and adults are active.
		0.25-1 lb/A (10% D)	Foliar application. Apply in early morning or evening when air is calm and adults are active.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
13019AA	Hanover salad		12 ppm (turnips, tops) 14 day preharvest interval through 2 pounds per acre for foliar application. Per acre rates may be applied by aircraft.
ITBCCFA	Armyworm	1-2 lb/A (80% WP) (2-4 lb/gal F1C) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (80% WP) or 0.017-0.022 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.039-0.116 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application.
ITBCBOA	Corn earworm		
ITBCCOA	Fall armyworm		
ITBJAHA	Imported cabbageworm		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Hanover salad (continued)		
IRAFAVA	Aster leafhopper	1-1.5 lb/A (80% WP) (2-4 lb/gal F1C) or 0.1-0.15 tbls actual*/0.1 gal/100 sq.ft (80% WP) or 0.017 oz**/ 0.1 gal/10 ft row (2 lb/gal F1C) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application. Repeat at 5 to 7 day intervals.
INAMADA IQAQAKA IRAFAAA	Flea beetles Harlequin bug Leafhoppers	0.5-1 lb/A (80% WP) (2-4 lb/gal F1C) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (80% WP) or 0.011 oz**/ 0.1 gal/10 ft row (2 lb/gal F1C) or	Foliar application.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Hanover salad (continued)		
		0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
VABAAA	Grasshoppers	0.5-1.5 lb/A (80% WP) (2-4 lb/gal FlC) or 0.05-0.015 tbls actual* /0.1 gal/ 100 sq.ft (80% WP) or 0.017 oz**/ 0.1 gal /10 ft row (2 lb/gal FlC) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
	Honeydew		See Melons.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
14008AA	Horseradish		5 ppm 3 day preharvest interval through 2 pound per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft.
14014AA	Radish		
14015AA	Rutabaga		
14019AA	Turnip (root crop)		
ITBCCFA	Armyworm	1-2 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/ 10 ft row (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50-80% WP) or 0.039-0.116 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (10% F1C)	Foliar application. Where cabbage looper is the principal problem, use an alternative pesticide specifically recommended for it. For control of small cabbage loopers after edible plant parts start to form. Apply at 5 to 7 day intervals as needed.
ITBCCSA	Cabbage looper		
ITBCCZA	Climbing cutworms		
ITBCBOA	Corn earworm		
ITBMBHA	Cross-striped cabbage worm		
ITBWAFC	Diamondback moth (larvae)		
ITBCCTA	Fall armyworm		
ITBJAHA	Imported cabbageworm		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		

Horseradish cluster (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
IRAFAVA	Aster leafhopper	1-1.5 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5% D) or 0.017 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.1-0.15 tbls actual*/0.1 gal/100 sq.ft (50-80% WP) or 0.039-0.116 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application. Repeat at 5 to 7 day intervals as needed.
INAMADA	Flea beetles	0.5-1.13 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal F1C)	Foliar application.
IQAQAKA	Harlequin bug		
IRAFAAA	Leafhoppers		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Horseradish cluster (continued)		
		or 0.05-0.125 tbls actual*/0.1 gal/100 sq.ft (50-80% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (10% F1C)	
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (4 lb/gal F1C) or 0.02 oz/10 ft row (5% D) or 0.017 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.05-0.015 tbls actual*/0.1 gal/100 sq.ft (50-80% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Horseradish cluster (continued)		
TBCCFA	Armyworm	2 lb/A	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
VAHAAA	Crickets	(5% G)	
TBCABA	Cutworms	(5-20% P/T)	
NBUAAA	Darkling beetles		
VABAAA	Grasshoppers		
JCAAAA	Millipedes		
GDAACA	Slugs		
GDAABA	Snails		
IFAAEA	Sowbugs		
	Kale		See Collards cluster.
	Kohlrabi		See Broccoli cluster.
	Kumquat		See Citrus Fruits.
	Lemon		See Citrus Fruits.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
3020AA	Lettuce Head, Leaf		10 ppm 3 day preharvest interval through 2 pounds per acre for foliar and broadcast soil applications to head lettuce. 14 day preharvest interval through 2 pounds per acre for foliar and broadcast soil applications to leaf lettuce. Per acre rates may be applied by aircraft.
TBCCFA	Armyworm	1-2 lb/A (1.75-10% D) (50-80% WP) (50% WP/D) (2-5 lb/gal FlC) 0.01-0.02 oz/10 ft row (5-10% D) or 0.011-0.022 oz**/0.1-0.25 gal/10 ft row (2 lb/gal FlC) or 0.067-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.029-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-41.8% FlC)	Foliar application. Where cabbage looper is the principal problem, use an alternative pesticide specifically recommended for it. For control of small cabbage loopers after edible plant parts start to form, apply at 5 to 7 day intervals. For the corn earworm, use the 2 pound rate at 5 to 7 day intervals after heads start to form.
TBCCSA	Cabbage looper		
TBCBOA	Corn earworm		
TBMBHA	Cross-striped cabbageworm		
NAMACA	Cucumber beetle		
TBCABA	Cutworms		
TBWAFC	Diamondback moth (larvae)		
TBJAHA	Imported cabbage worm		
NBPAZA	Japanese beetle		
QAXAAA	Lace bugs		
QAMARA	Lygus bugs		
TABACA	Saltmarsh caterpillar		
NBJAAA	Sap beetles		
RAEAAA	Spittlebugs		
QAQAAA	Stink bugs		
QAMATA	Tarnished plant bug		
MOAAAA	Thrips		
ITBCCOA	Yellowstriped armyworm		

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Lettuce Head, Leaf (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
IRAFAVA	Aster leafhopper	1-1.5 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.017 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.03-0.15 tbls actual*/100 sq.ft [0.1-0.25 gal/100 sq.ft] (50% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application. Repeat at 5 to 7 day intervals.
IQAMARA	Lygus bugs		
IRAEAAA	Spittlebugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Lettuce Head, Leaf (continued)		
INAMADA IQAQAKA IRAFAAA	Flea beetles Harlequin bug Leafhoppers	0.05-1 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.025-0.1 tbls actual*/100 sq.ft [0.1-0.25 gal/100 sq.ft] (50-85% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-41.8% FlC)	Foliar application.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Lettuce Head, Leaf (continued)		
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-85% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.15 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
ISASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
	Lime		See Citrus Fruits.
	Loganberry		See Blackberry cluster.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
10001AA	**Melons**		10 ppm No preharvest interval through 1 pound per acre for foliar and broadcast soil applications. Carbaryl injures watermelons in FL. Per acre rates may be applied by aircraft. Observe plant response precautions.
ITBCCFA	Armyworm	1 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.01 oz/ 10 ft row (5-10% D) or 0.011 oz**/ 0.1 gal/10 ft row (2 lb/gal FlC) or 0.08-0.1 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.029-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-41.8% FlC)	Foliar application.
INBGAAA	Blister beetles		
ITBCCSA	Cabbage looper		
INAMPHA	Corn rootworms		
INAMACA	Cucumber beetles		
ITBCABA	Cutworms		
ITBCCOA	Fall armyworm		
INAMADA	Flea beetles		
IQAQAKA	Harlequin bug		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IQAMARA	Lygus bugs		
INBJAAA	Sap beetles		
IQAGAFA	Squash bug		
IQAQAAA	Stink bugs		
IRASADA	Threecornered alfalfa hopper		
IMOAAAA	Thrips		
ITBCCQA	Yellowstriped armyworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Melons (continued)		
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-85% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz /10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal /10 ft row (2 lb/gal FlC) or 0.05-0.15 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Melons (continued)		
ITBMAUA ITBMAWA	Melonworm Pickleworm	0.5-1 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal F1C) (42.6% F1C) or 0.01 oz/10 ft row (2-10% D) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-42.6% F1C)	Foliar application.
ISASAAA ITBCCFA IVAHAAA ITBCABA INBUAAA IMDAAAA IVABAAA IJCAAAA IGDAACA IGDAABA IIFAAEA	Ants Armyworm Crickets Cutworms Darkling beetles Earwigs Grasshoppers Millipedes Slugs Snails Sowbugs	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
	Muskmelons		See Melons.
	Mustard (Greens)		See Collards cluster.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
05003AA	**Nectarine**		10 ppm 3 day preharvest interval through 8 pounds per acre for foliar application. 3 day preharvest interval through 2.5 pounds per acre for broadcast soil application.
ITBUBAA	Apple pandemis	1 lb/100 gal or 3-8 lb/A (50-85% WP) (2-5 lb/gal F1C) or 1 tbls actual*/gal (50% WP) or 0.125-0.375 oz**/gal (2-5 lb/gal F1C) (10-25% F1C)	Foliar application. For codling moth, oriental fruit moth, and plum curculio, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved. For scale control, apply when crawlers are present.
IRACCSA	Black cherry aphid		
IRAHAGA	Brown soft scale		
IQAAABA	Catfacing insects		
ITBGAZA	Codling moth		
INAMACA	Cucumber beetles		
IMDCABA	European earwig		
ITBGBOA	Eyespotted bud moth		
IRAKBVA	Forbes scale		
ITBUAGA	Fruittree leafroller		
ITBCBSA	Green fruitworm		
INBPAZA	Japanese beetle		
INBPADA	June beetle		
IRAHAJA	Lecanium scales		
IRACCAA	Mealy plum aphid		
IRAKBPA	Olive scale		
ITBUALA	Orange tortrix		
IOBMAFA	Oriental fruit moth		
IRAKBHA	Oystershell scale		
ITBUAYA	Pandemis moths		
ITAMABA	Peach twig borer		
IRAGACA	Periodical cicada		
INASAVA	Plum curculio		
ITBUAPA	Redbanded leafroller		
INBPAUA	Rose chafer		
IRAKBYA	San Jose scale		
IQAMATA	Tarnished plant bug		
ITAXAAA	Tussock moths		
ITBUBBA	Variegated leafroller		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Nectarine (continued)		
TBGAZA	Codling moth	3-6 lb/A (5-10% D) or 3.75-8 lb/A (7.5-10% D)	Foliar application. May be applied by aircraft. For codling moth and oriental fruit moth, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved.
TBUAGA	Fruittree leafroller		
NBPAZA	Japanese beetle		
NBPADA	June beetle		
TBUALA	Orange tortrix		
OBMAFA	Oriental fruit moth		
TAMABA	Peach twig borer		
RAGACA	Periodical cicada		
NASAVA	Plum curculio		
TAXAAA	Tussock moths		
TBQALA	Lesser peachtree borer	1 lb/100 gal (50-80% WP) (2-4 lb/gal F1C) or 1 tbls actual*/gal (5% WP) or 0.125-0.334 oz**/gal (2-4 lb/gal F1C) (25% F1C)	Foliar application. Apply when moths appear in early to late summer. Make 2 or 3 applications to limbs and trunk from ground to scaffold limbs at 7 day intervals timed with moth flight.
IOBMAFA	Oriental fruit moth	1.5-3 lb/A (50% WP)	Foliar application. Apply in a minimum of 40 gallons of water per acre by low volume ground equipment only. Apply higher rate at petal fall and lower rate in summer stages.
ITAMABA	Peach twig borer		
ISASAAA	Ants	2-2.5 lb/A (5% G) (5% P/T)	Broadcast soil application. Granular formulation may be applied by aircraft.
IVAHAAA	Crickets		
ITBCABA	Cutworms		
IVABAAA	Grasshoppers		
IIFAAEA	Sowbugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
10015AA	**Okra**		10 ppm No preharvest interval through 2 pound per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft. Repeat at 5 to 7 day intervals as needed.
ITBCCFA	Armyworm	1-2 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.029-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application.
INBGAAA	Blister beetles		
ITBCCSA	Cabbage looper		
ITBCBOA	Corn earworm		
INAMACA	Cucumber beetles		
ITBCABA	Cutworms		
INAMADA	Flea beetles		
IQAQAKA	Harlequin bug		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IQAQAAA	Stink bugs		
IMOAAAA	Thrips		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Okra (continued)		
VABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-85% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/ 10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal /10 ft row (2 lb/gal FlC) or 0.05-0.15 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
ISASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
6009AA	**Olive**		10 ppm No preharvest interval through 15 pounds per acre for foliar application. Do not exceed 2 applications per year.
IRAKBPA	Olive scale	0.75-1 lb/ 100 gal or 3-8 lb/A (50-80% WP) (4 lb/gal F1C) or 1 tbls actual*/gal (50% WP) or 0.125-0.167 oz**/gal (2 lb/gal F1C) (25% F1C)	Foliar application. Tank mix with summer oil and apply when crawlers are present.
	Orange		See Citrus Fruits.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
13022AA	**Parsley**		12 ppm 14 day preharvest interval through 2 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft.
IRAFAVA ITBCCFA ITBCCSA ITBCABA ITBCCOA INBPAZA IQAQAAA IQAMATA IMOAAAA	Aster leafhopper Armyworm Cabbage looper Cutworms Fall armyworm Japanese beetle Stink bugs Tarnished plant bug Thrips	1-2 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Where the cabbage looper is the principal problem, use an alternative pesticide specifically recommended for it. For control of small cabbage looper after edible plant parts start to form. Apply at 5 to 7 day intervals.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Parsley (continued)		
RAFAVA NAMACA RAFAAA	Aster leafhopper Flea beetles Leafhoppers	0.5-1 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application.
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal/10 ft row (2 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Parsley (continued)		
		or 0.05-0.015 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
ISASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
14012AA	**Parsnip**		5 ppm 3 day preharvest interval through 2 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft.
ITBCCFA	Armyworm	1-2 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-10% FlC)	Foliar application.
IRAFAVA	Aster leafhopper		
ITBCCSA	Cabbage looper		
ITBCABA	Cutworms		
INBPAZA	Japanese beetle		
IQAXAAA	Lace bugs		
IQAMARA	Lygus bugs		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IMOAAAA	Thrips		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Parsnip (continued)		
IRAFAVA	Aster leafhopper	1-1.5 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/ 10 ft row (5% D) or 0.011-0.017 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.15 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.039-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Repeat at 5 to 7 day intervals.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Parsnip (continued)		
INAMACA IRAFAAA	Flea beetles Leafhoppers	0.5-1 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-10% FlC)	Foliar application.
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal/10 ft row (2 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Parsnip (continued)		
		or 0.05-0.015 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
[SASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
[TBCCFA	Armyworm		
[VAHAAA	Crickets		
[TBCABA	Cutworms		
[NBUAAA	Darkling beetles		
[MDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
28035AA	**Pasture**		100 ppm (grass and hay) No pregrazing interval through 1.78 pounds per acre for ultra low volume foliar application. No pregrazing interval through 2 pounds per acre for foliar application or broadcast soil application. May be applied by aircraft.
28045AA	**Rangeland**		
ITBCCFA	Armyworm	0.88-1.5 lb/A (1.75-10% D) (50-85% WP) (4-5 lb/gal F1C)	Foliar application.
IQAMAJA	Black grass bugs		
IQALAEA	Chinch bugs		
ITASAIA	Essex skipper		
ITBCCOA	Fall armyworm		
ITBNAJA	Range caterpillars		
IOBNACA	Range crane fly		
IQAQAAA	Stink bugs		
ITBCDBA	Striped grass loopers		
IMOAAAA	Thrips		
ITBCCFA	Armyworm	1-2 lb/A (10-20 P/T)	Broadcast soil application. Apply lower rate for control of early instars on sparse vegetation and higher rate for mature crickets and grasshoppers or late instar armyworms on dense vegetation.
IVAHAAA	Crickets		
ITBCCOA	Fall armyworm		
IVABAAA	Grasshoppers		
IQAMAJA	Black grass bug	0.59-1.19 lb/A (3.8-4 lb/gal F1C) (3.8-4 lb/gal RTU)	Ultra low volume or low volume foliar application. Apply the lower rate for immature bugs in sparse vegetation and the higher rate for mature bugs or when vegetation is thick. May be applied by aircraft undiluted or diluted with diesel fuel, number 2 fuel oil, or kerosene. May be applied by ground mist blowers or cold fogging when diluted with aliphatic compounds mentioned above. Refer to manufacturer's directions for additional information on dilution rates, nozzles, and calibration. Do not mix with alcohol, water, or aromatic solvents. Do not mix with fertilizers. Formulated with petroleum distillate.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Pasture cluster (continued)		
IVABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-85% WP) (2-4 lb/gal F1C)	Foliar application. Apply lower half of the dosage range, for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
		0.59-1.78 lb/A (3.8-4 lb/gal F1C) (3.8-4 lb/gal RTU)	Ultra low volume or low volume foliar application. Apply the lower rate for nymphs on small plants or sparce vegetation and the higher rate when grasshoppers are mature or vegetation is thick. May be applied by aircraft undiluted or diluted with diesel fuel, number 2 fuel oil, or kerosene. May be applied by ground mist blowers or cold fogging when diluted with aliphatic compounds mentioned above. Refer to manufacture's directions for additional information on dilution rates, nozzles, and calibration. Do not mix with alcohol, water, or aromatic solvents. Do not mix with fertilizers. Formulated with petroleum distillate.
INBPALC	Green june beetle (larvae)	1.5-2 lb/A (50-80% WP) (4 lb/gal F1C)	Foliar application.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Pasture cluster (continued)		
NBPAZA	Japanese beetle	1.19 lb/A (3.8-4 lb/gal FlC) (3.8-4 lb/gal RTU)	Ultra low volume or low volume foliar application. Apply when adults are present. May be applied by aircraft undiluted or diluted with diesel fuel, number 2 fuel oil, or kerosene. May be applied by ground mist blowers or cold fogging when diluted with aliphatic compounds mentioned above. Refer to manufacture's directions for additional information on dilution rates, nozzles, and calibration. Do not mix with alcohol, water, or aromatic solvents. Do not mix with fertilizers. Formulated with petroleum distillate.
IOAMAAJ	Mosquitoes (adults)	0.25-0.53 lb/A (10% D) (50-80% WP) (4 lb/gal FlC)	Foliar application. Apply by mist blower or airblast dusters. Thorough coverage is essential for effective control. Apply in early morning or evening when air is calm and adults active. Repeat at 7 to 10 day intervals.
		0.5-1 lb/A (80% WP) (4 lb/gal FlC)	Foliar application. Apply by aircraft in sufficient water for thorough coverage. Apply in early morning or evening when air is calm and adults are active. Repeat at 7 to 10 day intervals.
		0.25-1 lb/A (10% D) (2-4 lb/gal FlC) or 1 lb/A (50-80% WP)	Foliar application. Apply sprays by low pressure ground sprayers in sufficient water for through coverage. Apply in early morning or evening when air is calm and adults are active. Repeat at 7 to 10 day intervals.
		1 lb/100 gal water (50-80% WP) (2-4 lb/gal FlC)	Foliar application. Apply where pest congregates in early morning or evening when air is calm and adults are active.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Pasture cluster (continued)		
TBNAJA	Range caterpillars	0.59-1.19 lb/A (3.8-4 lb/gal FlC) (3.8-4 lb/gal RTU)	Ultra low volume or low volume foliar application. Apply the lower rate when larvae are in early instars and the higher rate for later instars. May be applied by aircraft undiluted or diluted with diesel fuel, number 2 fuel oil, or kerosene. May be applied by ground mist blowers or cold fogging when diluted with aliphatic compounds mentioned above. Refer to manufacture's directions for additional information on dilution rates, nozzles, and calibration. Do not mix with alcohol, water, or aromatic solvents. Do not mix with fertilizers. Formulated with petroleum distillate.
5004AA	**Peach**		10 ppm 1 day preharvest interval through 8 pounds per acre for foliar or bark application. 1 day preharvest interval through 2.5 pounds per acre for broadcast soil applications. To avoid possible fruit thinning, do not apply wettable powder formulations until 2.5 days after full bloom.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peach (continued)		
ACAAA	Aphids	1 lb/100 gal or 3-8 lb/A (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.5-2 tbls actual*/gal (50-85% WP) or 0.5 tbls actual*/gal (5% WP/D) or 0.125-0.375 oz**/gal (2-5 lb/gal FlC) (10-41.8% FlC)	Foliar application. For codling moth, oriental fruit moth, and plum curculio, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved. For scale control, apply when crawlers are present. For Japanese beetle and June beetle, apply when adults appear and repeat in 10 to 14 days if needed.
BUBAA	Apple pandemis		
ACCSA	Black cherry aphid		
AHAGA	Brown soft scale		
AAABA	Catfacing insects		
BGAZA	Codling moth		
AHAWA	Cottony peach scale		
AMACA	Cucumber beetles		
DCABA	European earwig		
AHALA	European fruit lecanium		
BGBOA	Eyespotted bud moth		
AKBVA	Forbes scale		
BUAGA	Fruittree leafroller		
BCBSA	Green fruitworm		
BPAZA	Japanese beetle		
BPADA	June beetle		
AHAGA	Lecanium scales		
ACCAA	Mealy plum aphid		
AKBPA	Olive scale		
BMAFA	Oriental fruit moth		
AKBHA	Oystershell scale		
BUAYA	Pandemis moths		
TAMABA	Peach twig borer		
RAGACA	Periodical cicada		
NASAVA	Plum curculio		
TBUAPA	Redbanded leafroller		
NBPAUA	Rose chafer		
RAKBYA	San jose scale		
QAQAAA	Stink bugs		
QAMATA	Tarnished plant bug		
RAHANA	Terrapin scale		
TAXAAA	Tussock moths		
TBUBBA	Variegated leafroller		
RAKBWA	Walnut scale		
NAMBNA	Western spotted cucumber beetle		
RACBUA	White peach scale		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peach (continued)		
IQAAABA	Catfacing insects	1.5-6 lb/A (5-10% D) (5% WP/D) or 3.75-8 lb/A (7.5-10% D)	Foliar application. May be applied by aircraft. For codling moth, oriental fruit moth and plum curculio, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved. For scale control, apply when crawlers are present in spring and early summer.
ITBGAZA	Codling moth		
IRAKBVA	Forbes scale		
ITBUAGA	Fruittree leafroller		
INBPAZA	Japanese beetle		
INBPADA	June beetle		
IRAHAGA	Lecanium scales		
IRAKBPA	Olive scale		
ITBUALA	Orange tortrix		
IOBMAFA	Oriental fruit moth		
ITAMABA	Peach twig borer		
IRAGACA	Periodical cicada		
INASAVA	Plum curculio		
ITBUAPA	Redbanded leafroller		
IRAKBYA	San jose scale		
ITAXAAA	Tussock moths		
ITBGAZA	Codling moth	0.75 lb/100 gal (50-85% WP) (50% WP/D) (2-5 lb/gal F1C) or 3-8 lb/A (4 lb/gal F1C) or 1 tbls actual*/gal (50% WP) or 0.125-0.167 oz**/gal (2 lb/gal F1C) (10-27% F1C)	Foliar application. For codling moth, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved.
ITAUAEA	Eastern tent caterpillar		
ITBUALA	Orange tortrix		
ITAXAAA	Tussock moths		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peach (continued)		
ITBQALA	Lesser peachtree borer	1 lb/100 gal (50-85% WP) (50% WP/D) (2-4 lb/gal F1C) or 1 tbls actual*/gal (50-85% WP) or 0.5 tbls actual*/gal (5% WP/D) or 0.167-0.334 oz**/gal (2-4 lb/gal F1C) (25-41.8% F1C)	Bark application. Apply during appearance of moths in early to late summer. Make 2 or 3 applications to limbs and trunk from ground to scaffold limbs at 7 day intervals timed with moth flight.
IOBMAFA ITAMABA	Oriental fruit moth Peach twig borer	1.5-3 lb/A (50% WP)	Foliar application. Apply in a minimum of 40 gallons of water per acre by low volume ground equipment only. Apply higher rate at petal fall and lower rate in summer stages.
ITBQAHA	Peachtree borer	-- (5-10% D) or 3.5 lb/A (5% WP/D)	Bark application. Dust limbs and trunks thoroughly. Apply during appearance of moths in early to late summer. Make 2 or 3 applications to trunk from ground to scaffold limbs timed with moth flight.
		1 tbls actual*/gal (50% WP) or 0.5 tbls actual*/gal (5% WP/D) or 0.125 oz**/gal (27% F1C)	Bark application. Apply during appearance of moths in early to late summer. Make 2 or 3 applications to trunk from ground to scaffold limbs timed with moth flight.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peach (continued)		
ISASAAA	Ants	2-2.5 lb/A (5% G) (5% P/T)	Broadcast soil application. Granular formulation may be by aircraft.
IVAHAAA	Crickets		
ITBCABA	Cutworms		
IVABAAA	Grasshoppers		
IIFAAEA	Sowbugs		
28015AA	**Peanuts**		5 ppm (peanuts) 100 ppm (hay) No preharvest interval through 2 pounds per acre for foliar application. No preharvest interval through 1 pound per acre for broadcast soil application. Per acre rates may be applied by aircraft. Observe plant response precaution.
ITBJADA	Alfalfa caterpillar		
INAMARA	Bean leaf beetle	0.88-1.13 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) or 0.1 tbls actual*/ 0.1 gal/ 100 sq.ft (50-80% WP) or 0.017-0.022 oz**/0.1gal/ 10 ft row (2 lb/gal FlC) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2 lb/gal FlC)	Foliar application.
INAMACA	Cucumber beetles		
ITBCCCA	Green cloverworm		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers (including potato leafhopper)		
ITAMATA	Rednecked peanutworm		
ITBCCLA	Southern armyworm		
INAMBMA	Spotted cucumber beetle		
IBASADA	Three-cornered alfalfa hopper		
IMOAAA	Thrips		
ITBCATA	Velvetbean caterpillar		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peanuts (continued)		
ITBCCFA ITBCBOA ITBCCOA IQAQAAA ITAAAMA	Armyworm Corn earworm Fall armyworm Stinkbugs Webworms	0.88-1.56 (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal F1C) or 0.1-0.15 tbls actual*/ 0.1 gal/ 100 sq.ft (50-80% WP) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.039-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2 lb/gal F1C)	Foliar application.
INBGAAA	Blister beetles	0.44-1.13 (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal F1C) or 0.011 oz**/ 0.1 gal/ 10 ft row (2 lb/gal F1C) or 0.05-0.1 tbls actual*/ 0.1 gal/ 100 sq.ft (50-80% WP)	Foliar application.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peanuts (continued)		
		or 0.019-0.039 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2 lb/gal F1C)	
ITBCABA INASBOJ	Cutworms Whitefringed beetle (adults)	2 lb/A (80% WP) (4 lb/gal F1C) or 0.2 tbls actual*/0.1 gal/100 sq.ft (80% WP) or 0.077 oz**/0.23-0.46 gal/100 sq.ft (2 lb/gal F1C)	Foliar application.
IVABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (4 lb/gal F1C) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50-80% WP) or 0.017 oz**/0.1 gal/10 ft row (2 lb/gal F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs or small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peanuts (continued)		
		or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
ISASAAA	Ants	1 lb/A (5% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets (including field crickets)		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IVABAAA	Grasshoppers		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
04003AA	**Pear**		10 ppm 1 day preharvest interval through 10 pounds per acre for foliar application. 1 day preharvest interval through 2.5 pounds per acre for broadcast soil application. Foliage injury may result from wettable powder formulations tank mixed with summer oils.
IRACAUA	Apple aphid	3.4-6 lb/A (5-10% D) (5% WP/D) or 1.5-10 lb/A (5-10% D)	Foliar application. For codling moth and plum curculio, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved. For rosy apple aphid control, apply before leaves curl. For scale control apply when crawlers are present in spring and early summer. For apple maggot control apply at 10 day intervals beginning in July.
IOBMAQA	Apple maggot		
ISBEBAA	California pear sawfly		
ITBGAZA	Codling moth		
ITAUAEA	Eastern tent caterpillar		
ISBEARA	European apple sawfly		
ITBGBOA	Eyespotted bud moth		
IRAKBVA	Forbes scale		
ITBVAGA	Fruittree leaf roller		
INBPAZA	Japanese beetle		
IRAHAJA	Lecanium scales		
ITBUALA	Orange tortrix		
IRAKBHA	Oystershell scale		
IRAXALA	Pear psylla		
ISBEAEA	Pear sawfly		
IRAGACA	Periodical cicada		
INASAVA	Plum curculio		
ITBUAPA	Redbanded leafroller		
IRACBQA	Rosy apple aphid		
IRAKBYA	San jose scale		
ITAPABA	Tentiform leafminers		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Pear (continued)		
IRACAUA ITBGAZA	Apple aphid Codling moth	0.5 lb/100 gal or 3-6 lb/A (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 3-10 lb/A (4 lb/gal FlC) or 0.5 tbls actual*/gal (50% WP) (5% WP/D) or 0.0625-0.167 oz**/gal (2-5 lb/gal FlC) (5-41.8% FlC)	Foliar application. For use east of the Rocky Mountains. Heavy aphid populations may require repeat applications. For codling moth, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved.
IRACAUA ILAJAKA ITBKABA ISBEBAA ITBGAZA ITBGBOA ITBCBSA IRAHAJA ITBGASA IQAMARA ITBUALA IRAKBHA ILAJAWA IRAXALA ILAJAOA IRAKBYA ITAPABA IRACBUA	Apple aphid Apple rust mite Bagworm California pear sawfly Codling moth Eyespotted bud moth Green fruitworm Lecanium scales Lesser appleworm Lygus bugs Orange tortrix Oystershell scale Pearleaf blister mite Pear psylla Pear rust mite San jose scale Tentiform leafminers Woolly apple aphid	0.75-1 lb/100 gal or 3-6 lb/A (50-85% WP) (2-4 lb/gal FlC) or 1 tbls actual*/gal (50% WP) or 0.125-0.167 oz**/gal (2-2.36 lb/gal FlC) (5-27% FlC) or 3-10 lb/A (4 lb/gal FlC)	Foliar application. For use west of the Rocky Mountains. Heavy aphid populations may require repeat applications. For codling moth, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved. For psylla, apply when eggs hatch or young nymphs are present. For scale control, apply when crawlers are present.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Pear (continued)		
IOBMAQA	Apple maggot	1 lb/100 gal or 3-6 lb/A (50-85% WP) (50% WP/D) (2-5 lb/gal F1C) or 3-10 lb/A (4 lb/gal F1C) 1 tbls actual*/gal (50% WP) or 0.5 tbls actual*/gal (5% WP/D) or 0.083-0.167 oz**/gal (2-5 lb/gal F1C) (5-41.8% F1C)	Foliar application. For use east of the Rocky Mountains. For plum curculio, apply at petal fall and repeat at 10 to 14 day intervals until control is achieved. For rosy apple aphid, apply before leaves curl. For scale control, apply when crawlers are present. For apple maggot control, apply at 10 day intervals in July. For pear psylla control, apply when eggs hatch or young nymphs are present.
ILAJAKA	Apple rust mite		
ITBKABA	Bagworm		
ITAUAEA	Eastern tent caterpillar		
ISBEARA	European apple sawfly		
ITBGBOA	Eyespotted bud moth		
IRAKBVA	Forbes scale		
ITBUAGA	Fruittree leafroller		
ITBCBSA	Green fruitworm		
INBPAZA	Japanese beetle		
IRAHAJA	Lecanium scales		
ITBGASA	Lesser appleworm		
IRAKBHA	Oystershell scale		
ILAJAWA	Pearleaf blister mite		
IRAXALA	Pear psylla		
ILAJAOA	Pear rust mite		
IRAGACA	Periodical cicada		
INASAVA	Plum curculio		
ITBUAPA	Redbanded leafroller		
IRAKBYA	Sanyjoselscaleid		
IQAMATA	Tarnished plant bug		
ITAPABA	Tentiform leafminers		
IRACBUA	Woolly apple aphid		
ITBUACA	Yellowheaded fireworm		
ISASAAA	Ants	2-2.5 lb/A (5% G) (5% P/T)	Broadcast soil application. Granular formulation may be applied by aircraft.
IVAHAAA	Crickets		
ITBCABA	Cutworms		
IVABAAA	Grasshoppers		
IIFAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
28016AA	**Peas**		10 ppm (peas with pod) 100 ppm (peavines) No preharvest interval through 2.6 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft.
ITBJADA	Alfalfa caterpillar	1-1.5 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.01-0.02 oz/10 ft row (2-10% D) or 0.011-0.017 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-10% FlC)	Foliar application.
ITBCCFA	Armyworm		
INAMARA	Bean leaf beetle		
ITASAEA	Bean leafroller		
INBGAAA	Blister beetles		
ITBCBOA	Corn earworm		
INAMBHA	Corn rootworms		
INASARA	Cowpea curculio		
INAMACA	Cucumber beetles		
ITBCABA	Cutworms		
ITBMCCA	European corn borer		
ITBCCOA	Fall armyworm		
INAMADA	Flea beetles		
ITBCCCA	Green cloverworm		
IQAQAKA	Harlequin bug		
INBPAZA	Japanese beetle		
INASDPA	Pea leaf weevil		
INAGADA	Pea weevil		
INBJAAA	Sap beetles		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IRASADA	Three cornered alfalfa hopper		
IMOAAAA	Thrips		
ITBCATA	Velvet bean caterpillar		
ITAAAMA	Webworms		
ITBCATA	Western bean cutworm		
ITBCCQA	Yellowstriped armyworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peas (continued)		
ITBCAVA INAMCFA IRAFAAA	Alfalfa looper Colorado potato beetle Leafhoppers	1 lb/A (5-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.01-0.02 oz/ 10 ft row (5% D) or 0.011 oz**/ 0.1 gal/ 10 ft row (2 lb/gal FlC) or 0.1 tbls actual*/ 0.1 gal water/100 sq.ft (50% WP) or 0.039-0.0770 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Claims for Colorado potato beetle are limited to control on weeds in pea fields to avoid insect contamination in processed peas.
ITBCAVA	Alfalfa looper	2.4-2.6 lb/A (50-80% WP) (2.4 lb/gal FlC) or 0.25 tbls actual*/ 0.1 gal/ 100 sq.ft (50% WP)	Foliar application.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peas (continued)		
		or 0.116 oz**/ 0.23-0.46 gal/100 sq.ft (2-4 lb/gal FlC)	
ITBCBOA ITBMBFA IQAMARA IQAQAAA	Corn earworm Limabean pod borer Lygus bugs Stink bugs	2 lb/A (1.75-10% D) (50-85% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/ 10 ft row (5% D) or 0.022 oz**/ 0.1 gal/ 10 ft row (2 lb/gal FlC) or 0.067-0.266 tbls actual*/ 0.1 gal/ 100 sq.ft (50% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peas (continued)		
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-85% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/ 10 ft row (5-10% D) or 0.01-0.015 tbls actual*/ 100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5% FlC)	Foliar application. Apply lower half of dosage range for control of nymphs on small plants and upper half of dosage range for control of adults or when crops require greater coverage.
INAPAFA	Mexican bean beetle	0.5 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.02-0.1 tbls actual*/ 0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.039 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Apply when egg masses on the underside of the leaves first appear.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peas (continued)		
		or 0.01-0.02 oz/ 10 ft row (1.75-10% D)	
ISASAAA	Ants	1-2 lb/A (5% D) (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
03008Aa	**Pecan**		1 ppm No preharvest interval through 7.2 pounds per acre for foliar application.
IRACCNA	Blackmargined aphid	1-2.5 lb/100 gal [200-300 gal/A] [10-20 gal/tree] (50-80% WP) (4 lb/gal FlC) or 1 tbls actual*/gal (50% WP) or 3.125 lb/A or 0.167-0.417 oz**/gal (2-4 lb/gal FlC)	Foliar application. Apply full coverage sprays when pests are active, but do not exceed 1 application per 7 days.
ITABAIA	Fall webworm		
ITBGAXA	Hickory shuckworm		
ITBMEHA	Lesser webworm		
IRAVAIA	Pecan leaf phylloxera		
ITBMADA	Pecan nut casebearer		
IRAEADA	Pecan spittlebug		
INASBBA	Pecan weevil		
INALBCA	Twig girdler		
ITBDABA	Walnut caterpillar		
ITBMADA	Pecan nut casebearer	3.5-6 lb/A (50% WP)	Foliar application. Apply as a concentrate spray in 3 to 5 gallons of water per acre by ground equipment or aircraft.
INASBBA	Pecan weevil		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Pecan (continued)		
INASBBA	Pecan weevil	1.25 lb/tree (2-4 lb/gal F1C)	Soil application. Apply when foliar application is not feasible. Apply in a minimum of 10 gallons of water per tree to uniformly cover the entire area beneath the tree canopy 10 feet beyond the dripline. Repeat at 7 to 10 day intervals beginning at shell hardening (early August) until adult weevils are no longer present (approximately September 15).
28017AA	**Peppers**		10 ppm No preharvest interval through 4 pounds per acre for foliar and 2 pounds per acre for broadcast soil applications. Per acre rates may be applied by aircraft. Repeat at 7 to 10 day intervals as needed.
ITBCCFA	Armyworm	1-2 lb/A (1.75-10% D) (50-80% WP) (5-50% WP/D) (2-5 lb/gal F1C) (42.6% F1C) or 1-4 lb/A (5-10% DO (5% P/T) (4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.011-0.022 oz**/0.1 gal 10 ft row (2 lb/gal F1C)	Foliar application.
INBGAAA	Blister beetles		
ITBCCSA	Cabbage looper		
ITBCCZA	Climbing cutworms		
ITBCBOA	Corn earworm		
INAMBHA	Corn rootworms		
ITBCABA	Cutworms		
INAMACA	Cucumber beetles		
ITBMCCA	European corn borer		
ITBCCOA	Fall armyworm		
IQAQAKA	Harlequin bug		
INBPAZA	Japnanese beetle		
IQAXAAA	Lace bugs		
IQAMARA	Lygus bugs		
IQAMAAA	Plant bugs		
INBJAAA	Sap beetles		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IMOAAAA	Thrips		
ITBCBOA	Tomato fruitworm		
ITBRAJA	Tomato hornworm		
ITAMANA	Tomato pinworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peppers (continued)		
		or 0.089-0.266 tbls actual*/ 0.1 gal/ 100 sq.ft (50-85% WP) or 0.039-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-42.6% F1C)	
INAMCFA	Colorado potato beetle	0.5-1 lb/A (1.75-10% D) (50-80% D) (5-50% WP/D) (2-5 lb/gal F1C) (42.6% F1C) or 0.01-0.02 oz/ 10 ft row (2-10% D) or 0.011 oz**/ 0.1 gal/10 ft row (2 lb/gal F1C) or 0.044-0.133 tbls actual*/ 0.1 gal/ 100 sq.ft (50-85% WP)	Foliar application.
INAMADA	Flea beetles		
IRAFAAA	Leafhoppers		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peppers (continued)		
		or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-42.6% FlC)	
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.15 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Apply lower half of dosage range for control of nymphs on small plants and upper half of dosage range for control of adults or when crops require greater coverage.
ISASAAA ITBCCFA IVAHAAA ITBCABA	Ants Armyworm Crickets Cutworms	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Peppers (continued)		
	Pest list continued from previous page.		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
	Persian Melons		See Melons.
	Plum		See Cherry cluster.
14013AA	Potato		0.2 ppm No preharvest interval through 2 pounds per acre for foliar and broadcast soil application. Per acre rates may be applied by aircraft.
ITBCCFA	Armyworm	1-2 lb/A (1.75-10% D) (50-80% WP) (2-50% WP/D) (2-5% lb/gal F1C) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.067-0.266 tbls actual*/100 sq.ft [0.01-0.25 gal/100 sq.ft] (50-85% WP)	Foliar application.
IRAFAVA	Aster leafhopper		
INBGAAA	Blister beetle		
ITBCCSA	Cabbage looper		
ITBCBOA	Corn earworm		
INAMBHA	Corn rootworms		
INAMACA	Cucumber beetles		
ITBMCCA	European corn borer		
ITBCCOA	Fall armyworm		
ITBCCCA	Green cloverworm		
IQAQAKA	Harlequin bug		
INBPAZA	Japanese beetle		
IQAXAAA	Lace bugs		
IQAMARA	Lygus bugs		
IQAMAAA	Plant bugs		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
INAMCEA	Threelined potato beetle		
IMOAAAA	Thrips		
ITBCBOA	Tomato fruitworm		
ITBRAJA	Tomato hornworm		
ITAMANA	Tomato pinworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Potato (continued)		
		0.039-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-42.6% FlC)	
INAMCFA	Colorado potato beetle	0.5-1 lb/A (1.5-10% D) (50-80% WP) (5-50% WP/D) (2-5 lb/gal FlC) or 0.01-0.02 oz/10 ft row (2-10% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.025-0.133 tbls actual*/0.1-0.25 gal/100 sq.ft (50-85% WP) (10% WP/D) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (10-25% FlC)	Foliar application.
INAMADA	Flea beetles		
IRAFAAA	Leafhoppers		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Potato (continued)		
INAMCFA	Colorado potato beetle	2 lb/A (80% WP)	Center pivot irrigation application.
ITBCABA	Cutworms		
ITBMCCA	European corn borer		
INAMADA	Flea beetles		
ITBCABA	Cutworms	2 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal F1C) or 0.022 oz**/ 0.1 gal/ 10 ft row (2 lb/gal F1C) or 0.2 tbls actual*/ 0.1 gal/ 100 sq.ft (50% WP) or 0.077-0.154 oz**/100 sq.ft ½0.23-0.46 gal/100 sq.ft½ (2-4 lb/gal F1C)	Foliar application.
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal F1C) or 0.01-0.2 oz/ 10 ft row (5-10% D)	Foliar application. Apply lower half of dosage range for control of nymphs on small plants and upper half of dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Potato (continued)		
		or 0.01-0.015 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.15 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
ISASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Prune		See Cherry cluster.
10011AA	**Pumpkin**		10 ppm No preharvest interval through 1 pound per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft. Observe plant response precaution.
ITBCCFA	Armyworm	1 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) (42.6% FlC) or 0.01 oz/ 10 ft row (5-10% D) or 0.011 oz**/ 0.1 gal/ 10 ft row (2 lb/gal FlC) or 0.05-0.1 tbls actual*/ 0.1 gal/ 100 sq.ft (50-85% WP) or 0.039-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-42.6% FlC)	Foliar application.
IRAFAVA	Aster leafhopper		
INBGAAA	Blister beetles		
ITBCCSA	Cabbage looper		
ITBCBOA	Corn earworm		
INAMBHA	Corn rootworms		
INAMACA	Cucumber beetles		
ITBCABA	Cutworms		
ITBCCOA	Fall armyworm		
INAMADA	Flea beetles		
IQAQAKA	Harlequin bug		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IQAMARA	Lygus bugs		
IQAGAFA	Squash bug		
ITBQADA	Squash vine borer		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IMDAAAA	Thrips		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Pumpkin (continued)		
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal F1C) or 0.01 oz/ 10 ft row (5-10% D) or 0.01 oz**/ 0.1 gal/ 10 ft row (2 lb/gal F1C) or 0.05-0.1 tbls actual*/ 0.1 gal/ 100 sq.ft (50-80% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application. Apply lower half of dosage range for control of nymphs on small plants and upper half of dosage range for control of adults or when crops require greater coverage.
ITBMAUA ITBMAWA	Melonworm Pickleworm	0.5-1 lb/A (1.75-10 % D) (50-85% WP) (50% WP/D) (2-5 lb/gal F1C) (42.6% F1C) or 0.01 oz/ 10 ft row (2-10% D) or 0.05-0.1 tbls actual*/ 0.1 gal/ 100 sq.ft (50-85% WP)	Foliar application.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Pumpkin (continued)		
		or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-42.6% F1C)	
ISAS[illegible]AA	Ants	1-2 lb/A	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm	(5-10% G)	
IVAHAAA	Crickets	(5-20% P/T)	
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
	Radish		See Horseradish cluster.
	Raspberry		See Blackberry cluster.
28072AA	Rice		5 ppm (grain) 100 ppm (straw) 14 day preharvest interval through 2 pounds per acre for foliar application. Do not apply propanil within 15 days before or after carbaryl application to avoid injuring the rice. May be applied by aircraft. May kill shrimp and crabs. Do not use in areas where these are important resources.
ITBCCFA	Armyworm	0.94-1.5 lb/A	Foliar application. For use in MI Delta and TX.
IQALAEA	Chinch bugs	(5-10% D)	
ITBCCOA	Fall armyworm	(50-85% WP)	
IQAQAAA	Stink bugs	(4-5 lb/gal F1C)	
IMOAAAA	Thrips		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Rice (continued)		
ITBCCFA IRAFAAA IIBAABA	Armyworm Leafhoppers Tadpole shrimp	2 lb/A (5-10% D) (5-10% G) (50-80% WP) (4 lb/gal FlC)	Foliar application. For use in CA. For tadpole shrimp apply to the water when shrimp first appear.
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-85% WP) (4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
	Rutabaga		See Horseradish cluster.
14016AA 23026AA	Salsify (roots) Salsify (tops)		5 ppm (roots) 10 ppm (tops) 3 day preharvest interval through 2 pounds per acre of salsify roots. 14 day preharvest interval through 2 pounds per acre of salsify tops. Per acre rates may be applied by aircraft. Repeat at 5 to 7 day intervals as needed. Observe plant response precaution.
ITBCCFA INBPAZA IQAQAAA IQAMATA IMOAAAA	Armyworm Japanese beetle Stink bugs Tarnished plant bug Thrips	1-2 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/ 10 ft row (5% D) or 0.011-0.022 oz**/ 0.1 gal/ 10 ft row (2 lb/gal FlC)	Foliar application.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Salsify (roots) cluster (continued)		
		or 0.05-0.1 tbls actual*/ 0.1 gal/ 100 sq.ft (50% WP) or 0.039-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	
INAMADA IRAFAAA	Flea beetles Leafhoppers	0.5-1 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/ 10 ft row (5% D) or 0.011 oz**/ 0.1 gal/ 10 ft row (2 lb/gal F1C) or 0.05-0.1 tbls actual*/ 100 sq.ft (50% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	Foliar application

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Salsify (roots) cluster (continued)		
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.058 oz*/0.23-0.46 gal/100 sq.ft (2-4 lb/gal F1C)	Foliar application. Apply lower half of dosage range for control of nymphs on small plants and upper half of dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
3019AA	Sorghum, Grain, Milo, Sweet		10 ppm (grain) 100 ppm (forage) 21 day preharvest interval for grain through 2 pounds per acre for broadcast soil application. 2 day preharvest interval for grain through 2.03 pounds per acre for foliar application. No preharvest interval for forage through 2 pounds per acre for broadcast soil application. No preharvest interval for forage through 2.03 pounds per acre for foliar application. May be applied by aircraft. For insect control, on grain, sorghum, direct carbaryl into the forming heads.
ITBCCFA	Armyworm	0.88-2.03 lb/A (1.75-10% D) (50-85% WP) (4-5 lb/gal F1C)	Foliar application. For control of chinch bugs, use high volume ground spray equipment directed at the base of the plants.
IQALAEA	Chinch bugs		
ITBCBOA	Corn earworm		
ITBCCOA	Fall armyworm		
IQAQAAA	Stink bugs		
IMOAAAA	Thrips		
ITAAAMA	Webworms		
ITBCABA	Cutworms	2 lb/A (50-80% WP) (4 lb/gal F1C)	Foliar application.
IVABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-85% WP) (4 lb/gal F1C)	Foliar application. Apply lower half of dosage range for control of nymphs on small plants and upper half of dosage range for control of adults or when crops require greater coverage.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Sorghum, Grain, Milo, Sweet (continued)		
IOAMAIA	Sorghum midge	1.5-1.56 lb/A (5-10% D) (50-85% WP) (4-5 lb/gal F1C)	Foliar application. Apply when 35 to 40 percent of heads have emerged from boot and are in bloom (about 3 to 4 days after heads have emerged from boot). Repeat 3 to 5 days later if adults are still active. A third application may be needed if crop is late planted or if pest is abundant.
ITBMAYA	Southwestern cornborer	1.5 lb/A (80% WP) (4 lb/gal F1C)	Foliar application.
ITBCCFA IVAHAAA ITBCABA INBUAAA IVABAAA IGDAACA IGDAABA IIFAAEA	Armyworm Crickets Cutworms Darkling beetles Grasshoppers Slugs Snails Sowbugs	1.5-2 lb/A (5% G) (5% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
23022AA	**Soybeans**		5 ppm (soybeans) 100 ppm (forage and hay) No preharvest interval through 2.5 pounds per acre for foliar application. Do not use spray formulations in combination with 4-(2,4-Dichlorophenoxy)butyric acid. Per acre rates may be applied by aircraft. Observe plant response precautions.
ITBJADA	Alfalfa caterpillar	0.88-1.13 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (2-5 lb/gal F1C)	Foliar application.
INAMARA	Bean leaf beetle		
INAMACA	Cucumber beetles		
ITBCCCA	Green cloverworm		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IRASADA	Threecornered alfalfa hopper		
IMOAAAA	Thrips		
ITBCATA	Velvetbean caterpillar		
INASBWC	Alfalfa weevil (larvae)	0.88-1.56 lb/A (1.75-20% D) (50-85% WP) (50% WP/D) (2-5 lb/gal F1C)	Foliar application. To control heavy infestations use higher rate.
ITBCCFA	Armyworm		
ITBCBOA	Corn earworm		
ITBCABA	Cutworms		
ITBCCTA	Fall armyworm		
IQAQAAA	Stink bugs		
ITAAAMA	Webworms		
ITBCCFA	Armyworm	1.5 lb/A (50% D)	Foliar application. Concentrate dust treatment. Apply during bloom period and pod fill when pests are present. To apply concentrate dust by aircraft, use standard venturi-type equipment with spreader vanes or Swathmaster type spreaders. Fly at normal height (4 to 6 feet above plant tops) and maintain regular swath width (30 to 35 feet). For ground equipment, use tractor mounted power dusters with a metering device that feeds the concentrate dust through 1 nozzle per row (with deflector) or similarly designed electronic dusters.
INBGAAA	Blister beetle		
IVABAAA	Grasshoppers		
INAMBMA	Spotted cucumber beetle		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Soybeans (continued)		
INAMARA INAPAFA	Bean leaf beetle Mexican bean beetle	1 lb/A (50% D)	Foliar application. Concentrate dust treatment. Apply during bloom period and pod fill when pests are present. To apply concentrate dust by aircraft, use standard venturi-type equipment with spreader vanes or Swathmaster type spreaders. Fly at normal height (4 to 6 feet above plant tops) and maintain regular swath with (30 to 35 feet). For ground equipment, use tractor mounted power dusters with a metering device that feeds the concentrate dust through 1 nozzle per row (with deflector) or similarly designed electronic dusters.
INAMARA INAMACA ITBCCCA INAPAFA ITBCATA	Bean leaf beetle Cucumber beetles Green cloverworm Mexican bean beetle Velvetbean caterpillar	0.5-0.53 lb/A (50-80% WP) (4 lb/gal F1C)	Foliar application. Controls light to moderate infestations.
INBGAAA INAMBAA INAPAFA	Blister beetles Grape colaspis Mexican bean beetle	0.44-1.13 lb/A (1.75-20% D) (50-85% WP) (50% WP/D) (2-5 lb/gal F1C)	Foliar application. To control heavy infestations use higher rate.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Soybeans (continued)		
ITBCBOA	Corn earworm	1.5 lb/A (50% D)	Foliar application. Concentrate dust treatment. Apply when 1 larvae can be found per 3 feet of row. To apply concentrate dust by aircraft, use standard venturi-type equipment with spreader vanes or Swathmaster type spreaders. Fly at normal height (4 to 6 feet above plant tops) and maintain regular swath with (30 to 35 feet). For ground equipment, use tractor mounted power dusters with a metering device that feeds the concentrate dust through 1 nozzle per row (with deflector) or similarly designed electronic dusters.
		0.5-1 lb/A (50-80% WP) (50% WP/D) (4 lb/gal FlC)	Foliar application. Controls light to moderate infestations.
IVABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-85% WP) (50% WP/D) (4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
ITBEAJA ITABACA ITBCCQA	Painted lady Saltmarsh caterpillar Yellowstriped armyworm	2-2.5 lb/A (80% WP) (4 lb/gal FlC)	Foliar application. To control heavy infestation use higher rate.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
13024AA	**Spinach**		12 ppm 14 day preharvest interval through 2 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft. Repeat at 5 to 7 day intervals as needed.
ITBCCFA	Armyworm	1-2 lb/A (2-10% D) (50-80% WP) (50% WP/D) (2-5 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.089-0.2 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.058-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-25% FlC)	Foliar application.
ITBGAAA	Blister beetles		
ITBCCSA	Cabbage looper		
ITBCBOA	Corn earworm		
ITBCABA	Cutworms		
ITBCCOA	Fall armyworm		
INBPAZA	Japanese beetle		
IQAMARA	Lygus bugs		
INBJAAA	Sap beetles		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IMOAAAA	Thrips		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Spinach (continued)		
INAMACA IRAFAAA	Flea beetles Leafhoppers	0.5-1 lb/A (2-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/ 10 ft row (5% D) or 0.011 oz**/ 0.1 gal/10 ft row (2 lb/gal F1C) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.039 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-25% F1C)	Foliar application.
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal F1C) or 0.01-0.02 oz/ 10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal /10 ft row (2 lb/gal F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Spinach (continued)		
		or 0.05-0.015 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
ISASAAA	Ants	1-2 lb/A	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm	(5-10% G)	
IVAHAAA	Crickets	(5-20% P/T)	
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
10012AA	**Squash**		10 ppm No preharvest interval through 1 pound per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft. Observe plant response precaution.
ITBCCFA	Armyworm	1 lb/A (1.75-10% D) (50-80% WP) (2-50% WP/D) (2-5 lb/gal F1C) (42.6% F1C) or 0.01 oz/ 10 ft row (5-10% D) or 0.011 oz**/ 0.1 gal/10 ft row (2 lb/gal F1C) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.029-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-42.6% F1C)	Foliar application.
IRAFAVA	Aster leafhopper		
ITBCCSA	Cabbage looper		
ITBCBOA	Corn earworm		
INAMBHA	Corn rootworms		
INAMACA	Cucumber beetles		
ITBCABA	Cutworms		
ITBCCOA	Fall armyworm		
INAMADA	Flea beetles		
IQAQAKA	Harlequin bug		
INBPAZA	Japanese beetle		
IQAXAAA	Lace bugs		
IRAFAAA	Leafhoppers		
IQAMARA	Lygus bugs		
IQAGAFA	Squash bug		
ITBQADA	Squash vine borer		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IMOAAAA	Thrips		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Squash (continued)		
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-85% WP) (2-4 lb/gal FlC) or 0.01 oz/10 ft row (5-10% D) or 0.01 oz**/0.1 gal water/10 ft row (2 lb/gal FlC) or 0.05-0.1 tbls actual*/100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Squash (continued)		
ITBMAUA	Melonworm	0.5-1 lb/A (1.75-10% D) (50-80% WP) (2-50% WP/D) (2-5 lb/gal FlC) (42.6% FlC) or 0.01 oz/10 ft row (2-10% D) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-42.6% FlC)	Foliar application.
ITBMAWA	Pickleworm		
ISASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
01016AA	Strawberry		10 ppm 1 day preharvest interval through 2 pound per acre for foliar and broadcast soil applications. Wettable powder formulations may cause injury to Early Dawn and Sunrise varieties on the Delmarva Peninsula.
ITBCABA	Cutworms	0.75-2 lb/A (1.75-10% D) (5-50% WP) or 0.2 oz/100 ft row (5% D) or 1-2 lb/A (50-85% WP) (50% WP/D) (2-5 lb/gal FlC) (21.5% FlC) or 1-2 tbls actual*/gal (50-85% WP) or 0.5 tbls actual*/gal (5% WP/D) or 0.125-0.334 oz**/gal (2-5 lb/gal FlC) (10-25% FlC)	Foliar application. Dust formulations may be applied by aircraft. For spray formulations make full coverage applications postbloom and summer sprays. Repeat in normal schedule of 3 to 5 applications at 7 to 10 day intervals when pest first appears. For meadow spittlebug, apply when spittle masses first appear on or between young leaves and repeat as needed. For strawberry leafroller and strawberry weevil, apply to blossom buds and repeat as needed.
INAMADA	Flea beetles		
INBPAZA	Japanese beetle		
IRAFAAA	Leafhoppers		
IQAMARA	Lygus bugs		
IRAEAKA	Meadow spittlebug		
ITBUAWA	Omniverous leaftier		
ITABACA	Saltmarsh caterpillar		
ITBGADA	Strawberry leafroller		
INASAKA	Strawberry weevil		
IQAMATA	Tarnished plant bug		

CARBARYL

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Strawberry (continued)		
VABAAA	Grasshoppers	— (5-10% D)	Foliar application. Apply as needed.
SASAAA	Ants	1-2 lb/A	Broadcast soil application. May be applied by aircraft.
TBCCFA	Armyworm	(5-10% G)	
VAHAAA	Crickets	(5-20% P/T)	
TBCABA	Cutworms	or	
NBUAAA	Darkling beetles	0.074 oz/100	
MDAAAA	Earwigs	sq.ft	
VABAAA	Grasshoppers	(10% G)	
IFAAEA	Sowbugs		
8020AA	Sugar Beets		100 ppm (tops) 14 day preharvest interval through 2 pounds per acre for broadcast soil applications. 14 day preharvest interval through 2.03 pounds per acre for foliar applications. May be applied by aircraft.
ITBCAVA	Alfalfa looper	0.88-2 lb/A	Foliar application.
ITBCCFA	Armyworm	(1.75-10% D)	
INAMBXA	Beet leaf beetle	or	
INBGAAA	Blister beetle	1-1.5 lb/A	
ITBCOOA	Fall armyworm	(50-85% WP)	
INAMADA	Flea beetles	(4-5 lb/gal FlC)	
IRAFAAA	Leafhoppers (including beet leafhopper)		
ITAAAMA	Webworms (including beet webworms)		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Sunflower (continued)		
INAMDIA INASGOA	Sunflower beetle Sunflower stem weevil complex	1-2 lb/A or 1-2 tbls actual*/gal (80% WP)	Foliar application.
ITBCABA IVABAAA	Cutworms Grasshoppers	1-2 lb/A (10-20% P/T)	Broadcast soil application.
14018AA	Sweet Potato		0.2 ppm No preharvest interval through 2 pound per acre for foliar application. Per acre rates may be applied by aircraft.
ITBCBOA INAMACA INAMADA ITBRACA INAMABA	Corn earworm Cucumber beetles Flea beetles Sweetpotato hornworm Tortoise beetle	1-2 lb/A (80% WP) (4 lb/gal F1C) or 0.039-0.077 oz**/0.23 gal/100 sq.ft (4 lb/gal F1C)	Foliar application.
INASBGA	Sweetpotato weevil	1-2 lb/A (80% WP) (4 lb/gal F1C) or 0.039-0.077 oz**/0.23 gal/100 sq.ft (4 lb/gal F1C)	Foliar application. Full coverage of plant is essential. Use lower rate on young plants and higher rate on mature plants.
		7.2 tbls actual*/gal (80% WP)	Preplant dip treatment. Dip cuttings just prior to planting.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Sugar Beets (continued)		
ITBCABA	Cutworms	1.5 lb/A (80% WP) (4 lb/gal F1C)	Foliar application.
IVABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-85% WP) (4 lb/gal F1C)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
ISASAAA	Ants	2 lb/A (5% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets (including field crickets)		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IVABAAA	Grasshoppers		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
28021AA	Sunflower		1 ppm (seeds) 60 day preharvest interval through 2 pounds per acre for foliar and broadcast soil applications. Do not allow animals to graze on treated crops. Per acre rates may be applied by aircraft.
ITBCCFA	Armyworm	1.5-2 lb/A or 1.5-2 tbls actual*/gal (80% WP)	Foliar application.
ITBCCTA	Fall armyworm		
ITBCABA	Cutworms	1.5 lb/A or 1.5 tbls actual*/gal (80% WP)	Foliar application.
IVABAAA	Grasshoppers	1-1.5 lb/A or 1.5 tbls actual*/gal (80% WP)	Foliar application.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
13025AA	**Swiss Chard**		12 ppm 14 day preharvest interval through 2 pounds per acre for foliar and broadcast soil applications. Per acre rates may be applied by aircraft. Repeat at 5 to 7 day intervals.
ITBCCFA	Armyworm	1-2 lb/A (5-10% D) (50-80% WP) (50% WP/D) (2-4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.1-0.2 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.029-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-10% F1C)	Foliar application.
ITBMBWA	Beet webworm		
INBGAAA	Blister beetles		
ITBCCSA	Cabbage looper		
INAMBHA	Corn rootworms		
INAMACA	Cucumber beetles		
ITBCABA	Cutworms		
ITBMCCA	European corn borer		
ITBCBOA	Fall armyworm		
INBPAZA	Japanese beetle		
IQAMARA	Lygus bugs		
IQAQAAA	Stink bugs		
IQAMATA	Tarnished plant bug		
IMOAAAA	Thrips		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Swiss Chard (continued)		
NAMACA QAQAKA RAFAAA	Flea beetles Harlequin bug Leafhoppers	0.5-1 lb/A (5-7.5% D) (50-80% WP) (50% WP/D) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.1 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-10% FlC)	Foliar application.
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Swiss Chard (continued)		
		0.05-0.15 tbls actual* /0.1 gal/ 100 sq.ft (50% WP) or 0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	
ISASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
	Tangelo		See Citrus Fruits.
	Tangerine		See Citrus Fruits.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
26003DA	Tobacco (to be transplanted)		N.F. Treated fields may be entered immediately after dust has settled or foliage has dried. To prevent plant injury avoid excessive applications.
IVABAAA	Grasshoppers	0.44-1.5 lb/A (1.75-10% D) (50-80% WP) (4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.
INBPALC	Green june beetle (larvae)	0.5-0.53 lb/100 gal [50-100 gal/100 sq.yd] (50-85% WP) (50% WP/D) (4 lb/gal FlC)	Soil application. May be applied before or after seeding. Apply only to areas where pest has up-rooted plants. Sprinkle as a drench. Avoid excessive application or plant injury may result.
		0.05-0.1 lb/100 sq.yd (7.5-10% D)	Foliar application. Apply when plants appear. Repeat at 10 to 14 day intervals as needed and just before transplanting.
INAMBUA	Tobacco flea beetle	2-2.13 lb/100 gal (50-85% WP) (4 lb/gal FlC) or 1.333-2.125 tbls actual*/gal (50-85% WP) or 0.5-1 oz*/gal [6 gal/100 sq.yd] (4 lb/gal FlC)	Foliar application. Apply when plants appear. Repeat at 10 to 14 day intervals as needed and just before transplanting. Apply per 1 gallon water rates by hand with a knapsack sprayer.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Tobacco (to be transplanted) (continued)		
ISASAAA ITBCCFA IVAHAAA ITBCABA INBUAAA IVABAAA	Ants Armyworm Crickets Cutworms Darkling beetles Grasshoppers	0.025-0.05 lb/1,000 sq.ft (5% G) (5% P/T)	Broadcast soil application.
26003AA	Tobacco		N.F. Do not exceed 2 pounds per acre for broadcast soil application or 2.5 pounds per acre for foliar application. If late season applications are needed, allow 3 days before priming or cutting. Treated fields may be entered immediately after dust has settled or foliage has dried. Avoid getting wet with plant juices when cutting crop. Do not use carbaryl on shade tobacco in combination with parathion. May be applied by aircraft. Observe plant response precaution.
IRACAAA IVABAAA IQAMAFA	Aphids Grasshoppers Suckfly	1.5-2.5 lb/A (2-10% D)	Foliar application.
ITBCCOA IQAMAFA	Fall armyworm Suckfly	1-2 lb/A (80% WP) (4 lb/gal F1C)	Foliar application. Begin application when larvae are small. Use lower rate on plants up to knee high. Apply a minimum of 10 gallons finished spray per acre.
IRAMADA ITBCCVA	Flea beetles (including tobacco flea beetle) Tobacco budworm complex	0.4-0.6 lb/A (2-10% D)	Foliar application. For hand application directed to the bud and top leaves only. Avoid heavy applications with cloth bags or shorter cans or by hand 'pinching' as plant injury may result. Apply with rotary dusters.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Tobacco (continued)		
IRAMADA	Flea beetles (including tobacco flea beetle)	0.75-2.5 lb/A (1.75-10% D) or 0.94-2.03 lb/A (50-85% WP) (2-5 lb/gal FlC) or 4.25 tbls actual*/gal (85% WP) or 0.156-0.208 oz/gal water (5 lb/gal FlC)	Foliar application. Use the lower rate on plants up to knee high. Begin application when larvae are small (less than 1.5 inches long). For sprays, apply in a minimum of 10 gallons of water per acre. Where budworm damage is prevalent, direct application into bud. Avoid excess application in plant buds as injury may result. Apply per gallon rates by hand or with a knapsack sprayer. For flea beetles, apply to undersides of leaves as well. Good coverage is essential for effective control.
ITBRAAA	Hornworms (including tobacco hornworm)		
INBPAZA	Japanese beetles		
INBPADA	June beetles		
ITBCCVA	Tobacco budworm complex		
IVABAAA	Grasshoppers	0.44-1.7 lb/A (1.75-10% D) (50-85% WP) (4 lb/gal FlC)	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage. Apply also to barrier strips 15 to 30 feet wide around plant. Do not graze or feed animals on treated barrier strips for 7 days following treatment.
ISASAAA	Ants	1-2 lb/A (5% G) (5% P/T)	Broadcast soil application. May be applied by aircraft.
ITBCCFA	Armyworm		
IVAHAAA	Crickets (including field crickets)		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IVABAAA	Grasshoppers		
IIFAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
1005AA	**Tomato**		10 ppm No preharvest interval through 4 pounds per acre for foliar application and 2 pounds per acre for broadcast soil applications. Per acre rates may be applied by aircraft.
TBCCFA	Armyworm	1-2 lb/A (1.75-10% D) (50-80% WP) (2-50% WP/D) (2-5 lb/gal F1C) (42.6% F1C) or 1-4 lb/A (5-10% D) (5% P/T) (4 lb/gal F1C) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.011-0.022 oz**/0.1 gal/10 ft row (2 lb/gal F1C) or 0.089-0.266 tbls actual*/100 sq.ft [0.1-0.25 gal/100 sq.ft] (50-85% WP) or 0.039-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C) (5-42.6% F1C)	Foliar application.
NBGAAA	Blister beetles		
NAMBHA	Corn rootworms		
NAMACA	Cucumber beetles		
TBMCCA	European corn borer		
TBCCOA	Fall armyworm		
QAQAKA	Harlequin bug		
NBPAZA	Japanese beetle		
QAXAAA	Lace bugs		
QAXAKA	Lygus bugs		
QAMAAA	Plant bugs		
NBJAAA	Sap beetles		
QAQAAA	Stink bugs		
QAMATA	Tarnished plant bug		
RASADA	Threecornered alfalfa hopper		
MOAAAA	Thrips		
TBCBOA	Tomato fruitworm		
TBRAJA	Tomato hornworm		
TAMANA	Tomato pinworm		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Tomato (continued)		
IBCCZA	Climbing cutworms	1 lb/A (5-10% D) (50% WP)	Foliar application.
NAMCFA	Colorado potato beetle	0.5-1 lb/A (1.75-10% D) (50-80% WP) (5-50% WP/D) (2-5 lb/gal FlC) (42.6% FlC) or 0.01-0.02 oz/10 ft row (2-10% D) or 0.011 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.044-0.133 tbls actual*/0.1 gal/100 sq.ft (50-85% WP) or 0.019-0.077 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC) (5-42.6% FlC)	Foliar application.
NAMACA	Flea beetles		
RAFAAA	Leafhoppers		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Tomato (continued)		
ITBCABA	Cutworms	2 lb/A (50-80% WP) (2-4 lb/gal FlC) or 0.2 tbls actual*/0.1 gal/100 sq.ft (50% WP) or 0.077-0.154 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal FlC)	Foliar application.
IVABAAA	Grasshoppers	0.5-1.5 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal FlC) or 0.01-0.02 oz/10 ft row (5-10% D) or 0.01-0.015 oz**/0.1 gal/10 ft row (2 lb/gal FlC) or 0.05-0.15 tbls actual*/0.1 gal/100 sq.ft (50% WP) or	Foliar application. Apply lower half of the dosage range for control of nymphs on small plants and upper half of the dosage range for control of adults or when crops require greater coverage.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Tomato (continued)		
		0.019-0.058 oz**/100 sq.ft [0.23-0.46 gal/100 sq.ft] (2-4 lb/gal F1C)	
ISASAAA	Ants	1-2 lb/A (5-10% G) (5-20% P/T)	Broadcast soil application. For nocturnal cutworms, spread bait in the afternoon banded along rows or broadcast.
ITBCCFA	Armyworm		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IGDAACA	Slugs		
IGDAABA	Snails		
IIFAAEA	Sowbugs		
	Turnip (greens)		See Collards cluster.
	Turnip (root crops)		See Horseradish cluster.
03009AA	Walnut		1 ppm No preharvest interval through 5 pound per acre for foliar application or 2 pounds per 100 gallons of water for bark application.
IRAHAKA	Calico scale	-- (5% D) or 0.5 lb/100 gal [1,000 gal /A] or 4-5 lb/A (50-85% WP) (2-4 lb/gal F1C) or	Foliar application. Apply per acre rate in a minimum of 200 gallons of water per acre by low volume ground equipment. For codling moth, apply when average cross sectional diameters of developing nuts reaches 0.5 to 0.75 inch. Repeat during mid to late June if needed. For scale control, apply when crawlers are present.
ITBGAZA	Codling moth		
IRAHALA	European fruit lecanium		
ITBGBBA	Filbertworm		
IRAHAPA	Frosted scale		
ITBUAGA	Fruittree leafroller		
IRAAABA	Scales		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Walnut (continued)		
		0.5 tbls actual*/gal (50% WP) or 0.0625-0.167 oz**/gal (2 lb/gal F1C) (5-10% F1C)	
IMDC[illegible]BA	European earwig	2 lb/100 gal or 3-5 lb/A (50-80% WP) (4 lb/gal F1C) or 0.334 oz**/gal (2 lb/gal F1C)	Foliar application.
IRACBHA	Walnut aphid	0.167 oz**/gal (25% F1C)	Use limited to CA. Foliar application.
	Watermelons		See Melons.
28065AA	Wheat		0 ppm (grain) 100 ppm (green fodder and straw) 21 day preharvest interval for grain through 1.5 pounds per acre for foliar application. 21 day preharvest interval for grain through 1.78 pounds per acre for ultra low volume foliar application. No preharvest interval for green wheat used as pasture or forage through 1.5 pounds per acre for foliar application. No preharvest interval for green wheat used as pasture or forage through 1.78 pounds per acre for ultra low volume foliar application. May be applied by aircraft. Do not make more than 2 applications after grain heads emerge from boot.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Wheat (continued)		
ITBCCFA ITBCCOA	Armyworm Fall armyworm	0.5-1.5 lb/A (10-20% P/T) (80% WP)	Foliar application.
INAMCMA	Cereal leaf beetle	1 lb/A (80% WP)	Foliar application. Effective against eggs, larvae, and adults.
IVABAAA	Grasshoppers	0.5-1.5 lb/A (10-20% P/T) (80% WP)	Foliar application.
		0.59-1.78 lb/A (3.8 lb/gal FlC) (3.8 lb/gal RTU)	Ultra low volume or low volume foliar application. Apply the lower rate for nymphs on small plants or sparce vegetation and the higher rate when grasshoppers are mature and vegetation is thick. May be applied by aircraft undiluted or diluted with diesel fuel, number 2 fuel oil, or kerosene. May be applied by ground mist blowers or cold fogging when diluted with aliphatic compounds mentioned above. Refer to manufacturer's directions for additional information on dilution rates, nozzles, and calibration. Do not mix with alcohol, water, or aromatic solvents. Do not mix with fertilizers. Formulated with petroleum distillate.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	LIVESTOCK AND POULTRY		
	(Poultry)		
001IA 002IA 011IA 003IA 012IA 005IA 006IA 008IA	Chickens Ducks Gamebirds Geese Partridges Pheasants Pigeons Turkeys		0.5 ppm (eggs) interim tolerance 5 ppm (meat and fat) 7 day preslaughter interval through 0.05 pound per 100 birds for animal treatment or 0.125 pound per 50 birds for animal dust box treatment. Do not contaminate feed and drinking water.
AHABA NAAAA AAADA AOADA	Chicken mite Fleas Lice (including chicken body louse, fluff louse, shaft louse, wing louse) Northern fowl mite	0.047-0.05 lb/100 birds (50-85% WP) (2-4 lb/gal F1C)	Animal treatment. Apply as a mist by electric fog machines. Apply to birds in cages, on litter, or on slatted floors. Repeat in 28 days if needed. For chicken mite and fleas this is supplemental to spraying roosts and buildings.
		0.0375-0.0425 lb/100 birds (50-85% WP) (2-5 lb/gal F1C)	Animal treatment. Apply as a spray by conventional knapsack or compressed air sprayers. Apply to birds in cages, on litter or slatted floors. Repeat in 28 days if needed. For chicken mite and fleas this is supplemental to spraying roosts and buildings.
		0.047-0.05 lb/100 birds (5-10% D)	Animal treatment. Apply as a dust by shaker can or hand duster. Direct dust to vent and fluff areas. Also treat head and neck for stick tight fleas. Repeat in 28 days if needed. For chicken mite and fleas this is supplemental to spraying roosts and buildings.
		0.125 lb/ 50 birds (5-10% D)	Animal dust box treatment. For chicken mite and fleas this is supplemental to treating roosts and buildings. On ranges, 2 natural wallows may be substituted for each dust box.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
56005IA	Horses		
IMNAAAA	Fleas	0.1 oz/ animal (5% D)	Animal treatment. Rub dust into hair on back and neck. Claims for stable fly are limited to suppression of populations.
IOAUADA	Horn fly		
IMAAADA	Lice		
IOAUAHA	(Stable fly)		
ILAAACA	Ticks		
		0.16 oz/qt/ mature animal (50% WP)	Animal treatment. Apply 1 quart finished spray per mature animal and less on smaller animals. Repeat at 4 day intervals. For stable fly direct spray towards legs. Claims for stable fly are limited to suppression of populations.

AGRICULTURAL PREMISES AND EQUIPMENT

(Poultry Houses, Equipment and Yards)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
55000JA	Poultry Houses		0.5 ppm (eggs) interim tolerance 5 ppm (meat and fat) 7 day preslaughter interval through 5.12 ounces per 1.000 square feet (spray) or 1.25 pounds per 1,000 square feet (dust) for premise treatment. Do not contaminate nests, eggs, feed, or drinking water. Ventillate during treatment.
IQAFACA	Bed bug	0.64-1.4 lb/ 1,000 sq.ft (50-85% WP) (2-5 lb/gal FlC) (25% FlC)	Premise treatment. Apply to floors, roosts, and interior surfaces by conventional power sprayers or knapsack sprayers. Force spray into cracks and crevices. Repeat as needed.
ILAHABA	Chicken mite		
IMNAAAA	Fleas		
IMAAADA	Lice		
ILAOADA	Northern fowl mite		
ILACABA	Fowl Tick	2.56-5.12 oz/ 1,000 sq.ft (50-85% WP) (2-5 lb/gal FlC)	
IQAFACA	Bed bug	1.25 lb/ 1,000 sq.ft (5-10% D) (10% G)	Premise treatment. Apply to floors, roosts, and interior surfaces by using a scoop, hand duster or power duster. Force dust into cracks and crevices. Repeat as needed.
ILAHABA	Chicken mite		
IMNAAAA	Fleas		
IMAAADA	Lice		
ILAOADA	Northern fowl mite		

EPA Index to Pesticide Chemicals

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Poultry Houses (continued)		
BUACA	Lesser mealworm	1.25 lb/ 1,000 sq.ft (5-10% D) or 0.5-1 lb/ 1,000 sq.ft (80% WP) (2-4 lb/gal FlC)	Premise treatment. Apply to floors and surface litter. Repeat as needed.
	(Farm Storage and Equipment (nonanimal))		
009JA	Barns		
ASAAA	Ants	2-2.5% susp. (80% WP) (2-4 lb/gal FlC)	Use limited to Professional Pest Control Operators. Premise treatment. Apply as a coarse wet spray or with a paint brush. Thoroughly treat cracks and crevices, baseboards, corners, walls, door sills, window frames, pet quarters, ant trails, outside perimeter of dwellings, and places where pests tend to congregate. Apply up to 2 times per 7 day interval. Do not use as a space spray. Do not use where edible products are exposed, being prepared, processed, or served. Avoid application to surfaces where visible residues are objectionable.
AAABA	Cockroaches		
AMAQA	Brown dog tick		
DAAAA	Earwigs		
NAAAA	Fleas		
CAAAA	Millipedes	0.8-1.2% susp. (80% WP) (2-4 lb/gal FlC)	
PBACA	Silverfish		
	(Empty Mushroom Houses and Greenhouses, Uncropped Mushroom House and Greenhouse Soil)		
015JA	Greenhouses		
FAAEA	Sowbugs	— (5% G)	Premise treatment. Apply where pests congregate on the framework, or propagation benches, and in between frame and soil.

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CARBARYL

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	HUMANS, PETS AND OTHER ANIMALS		
54002IA	Cats		
54003IA	Dogs		Do not treat puppies and kittens less than 28 days of age. Do not use on pets nursing young under 28 days old.
IMNAAAA	Fleas	-- (2-10% D)	Animal treatment. Dust liberally over animal and rub thoroughly in towards the skin. For brown dog tick also apply to the legs, feet, and between the toes. Comb out dead ticks a few hours after treatment. Do not apply more than once per 7 days. Use in conjunction with premise treatment.
IMAAADA	Lice		
ILAAACA	Ticks		
		0.5 tbls actual*/ pint/ average size (50% WP)	Animal treatment. Sponge on hair coat until saturated. Allow coat to dry naturally. Apply up to 3 times at 7 day intervals. Use in conjunction with premise treatment.
		shampoo (0.5% FlC)	Animal treatment. Thoroughly wet the entire hair coat with warm water and apply enough shampoo to form a lather. Work lather into hair coat. Allow lather to remain in contact with the skin for a minimum of 5 minutes before rinsing. Do not apply more than once per 7 days. Do not allow to get on eyes or scrotum. Formulated with ethanol, ethoxylated lanolin, disodium ethylenediaminetetraacetate, and ammonium lauryl sulfate.

CARBARYL

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
54002IA	Cats		
IMNAAAA	Fleas	flea collar (8.5% Impr)	Animal treatment. Do not use on kittens under 42 days of age. Cut off excess collar yet leave ample length for growth of cat. Buckle loosely to avoid possible skin irritation. Observe neck area when collar is first worn and remove if irritation persists. Do not use with any other pesticide. Do not use on sick or convelescing animals. Labeling claims control for up to 17 weeks.
		foam spray (0.5% PrL)	Animal treatment. Hold can 1 inch from cats' back and apply a strip of foam down the back from the neck to the base of the tail. If cat is laying down a line of foam may be applied to the side or belly. Do not rub in. Do not get on eyes or scrotum. Apply at 7 day intervals.
IMNAAAA ILAAACA	Fleas Ticks	pump spray (0.5% RTU)	Animal treatment. Apply evenly to coat until tips of hair are moist. Ruffle long hair cats for spray to reach skin. Spray ticks directly. Repeat at 7 day intervals. Use in conjunction with premise treatment.
54002IA 54003IA		Also refer to Cats clusters for additional information.	
54003IA	Dogs		
IMNAAAA	Fleas	flea collar (9-12% Impr)	Animal treatment. Do not use on puppies under 35 days of age. Cut off excess collar yet leave ample length for growth of dog. Buckle loosely to avoid possible skin irritation. Observe neck area when collar is first worn and remove at first sign of irritation or other adverse effects. Remove collar when bathing dog and do not replace until animal is dry. Do not allow dog to chew on the collar. Do not use any other pesticide on the dog while the

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Dogs (continued)		
			collar is worn. Labeling claims control for up to 2 months for 9 percent formulation and up to 3 months for 12 percent formulation.
IMNAAAA ILAAACA	Fleas Ticks	flea collar (16% Impr)	Animal treatment. See use directions above. Labeling claims control of fleas for up to 4 months and ticks for up to 1 month.
54002IA 54003IA		Also refer to Cats cluster for additional information.	
54002JA 54003JA 54000JA	Catteries Kennels Pet Sleeping Quarters		
ISASAAA IVAAABA	Ants Cockroaches	2-2.5% susp. (80% WP) (2-4 lb/gal FlC)	Use limited to Professional Pest Control Operators. Premise treatment. Apply as a coarse wet spray or with a paint brush. Apply to pet sleeping quarters and other areas where pests tend to congregate. Do not treat animals. Apply up to 2 times per 7 day intervals.
ILAMAQA IMDAAAA IMNAAAA IJCAAAA IMPBACA	Brown dog tick Earwigs Fleas Millipedes Silverfish	0.8-1.2% susp. (80% WP) (2-4 lb/gal FlC)	
ILAMAQA IMNAAAA ILAAACA	Brown dog tick Fleas Ticks	2 tbls actual*/gal water (50% WP) or 0.468 lb/ 5,000 sq.ft (25% FlC) or pump spray (0.5% RTU)	Premise treatment. Apply wettable powder and flowable concentrate formulations as a spray to inside and outside of doghouses and other areas where pet sleeps. Replace with fresh bedding. Repeat at 14 to 21 day intervals as needed. Apply ready-to-use to cats' bedding and immediate area.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Catteries cluster (continued)		
IMNAAAA	Fleas	-- (2% D) or 0.25-0.5 lb/ 5,000 sq.ft (5-10% D)	Premise treatment. Apply by garden type dusters. Force dust into cracks and crevices. Repeat as needed. Do not expose kittens under 4 weeks of age to treated area.
ILAAACA	Ticks	-- (2% D) or 0.125-0.25 lb/5,000 sq.ft (5-10% D)	

ORNAMENTALS

General Warnings and Limitations: Do not apply to Boston ivy, Virginia creeper and maidenhair fern. Do not apply to sand pine and Virginia pine during early season.

(Ornamental Plants (herbaceous, woody shrubs, trees and vines))

General Warnings and Limitations: Observe plant response precautions.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
31000AA 31000DA 31007AA 31007DA	Ornamental Herbaceous Plants (including nursery stock) Ornamental Herbaceous Annual Plants (including nursery stock)		For aerial and concentrate spray applications to commercially grown ornamentals and nursery stock, apply rate given in per 100 gallons in sufficient water for thorough coverage.
ISASAAA	Ants	1 lb/100 gal or 1 tbls actual*/gal (50-80% WP) or 1 lb/100 gal or 0.125-0.5 oz**/gal (2-5 lb/gal FlC)	Foliar application. Apply when pest first appears and repeat at 7 to 10 day intervals. Apply dilute sprays for thorough coverage of upper and lower leaf surfaces. For larval control, treat in early instars. Addition of stickers may improve residual control. Extenders may be added to increase interval between applications, up to 21 to 28 days.
ITBCCFA	Armyworm		
ITBCABA	Cutworms		
ITBCCOA	Fall armyworm		
INASCWA	Fuller rose beetle		
IOAHAAA	Gall midges		
IVABAAA	Grasshoppers		
ITBRAMA	Poinsettia hornworm		
INBPAUA	Rose chafer		
ISAAABA	Sawflies (exposed)		
IIFAAEA	Sowbugs		
IMCAAAA	Springtails		
ITAAAMA	Webworms		

CARBARYL

Ornamental Herbaceous Plants (including nursery stock) cluster (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
BGAAA	Blister beetles	1.5-2 lb/A or 0.055-0.075 oz/100 sq.ft (1.75-10% D) or 0.9-1 lb/ 100 gal or 1 tbls actual*/gal (50-85% WP) (5-10% WP/D) or 0.9-1 lb/ 100 gal or 0.125-0.5 oz**/gal (2.5 lb/gal F1C) (5-42.6% F1C)	Foliar application. Refer to use directions above for additional information.
AMADA	Flea beetles		
BPAZA	Japanese beetles		
BPADA	June beetles		
AXAAA	Lace bugs		
AFAAA	Leafhoppers		
AAAEA	Leafrollers		
AWAAA	Mealybugs		
AMAAA	Plant bugs		
AXAAA	Psyllids		
ASAFA	Thornbug		
IOAAAA	Thrips (exposed)		
SASAAA	Ants	1-2.4 lb/A or 0.04-0.09 oz/ 100 sq.ft (5-20% P/T)	Broadcast soil application. Repeat at 14 day intervals. For cutworms and sowbugs apply in late afternoon.
TBCCFA	Armyworm		
VAHAAA	Crickets		
TBCABA	Cutworms		
NBUAAA	Darkling beetles		
MDAAAA	Earwigs		
VABAAA	Grasshoppers		
JCAAAA	Millipedes		
VAIAAA	Mole crickets		
IFAAEA	Sowbugs		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
35000AA 35000DA 34000AA 34000DA	Ornamental and/or Shade Trees (including nursery stock) Ornamental Woody Shrubs and Vines (including nursery stock)		For aerial and concentrate spray applications to commercially grown ornamentals and nursery stock, apply rate given in per 100 gallons in sufficient water for thorough coverage.
ISASAAA	Ants	1 lb/100 gal or 1 tbls actual*/gal (50-85% WP) (5-10% WP/D) or 0.93-1 lb/100 gal or 0.17-0.375 oz**/gal (2-5 lb/gal FlC) (5-42.6% FlC) or 1.5-2 lb/A or 0.055-0.075 oz/100 sq.ft (1.75-10% D)	Foliar application. Apply dilute sprays for thorough coverage of upper and lower leaf surfaces. Apply when pest first appears and repeat at 7 to 10 day intervals. For larval control, treat in early instars. For scale insects apply sprays to stems, twigs, and bark in addition to foliage when crawlers are present. Addition of stickers may improve residual control. Extenders may be added to increase interval between application, up to 21 to 28 days.
IRACAUA	Apple aphid		
ITBKABA	Bagworm		
ISBEAMA	Birch leafminer		
IQAUACA	Boxelder bug		
IOAHASA	Boxwood leafminer		
IRACDUA	Elm leaf apid		
INAMDAA	Elm leaf beetle		
ITAXAIA	Gypsy moth		
INBPAZA	Japanese beetle		
INBPADA	June beetle		
IQAXAAA	Lacebugs		
IRAFAAA	Leafhoppers		
IMAAAEA	Leafrollers		
IRAWAAA	Mealybugs		
ITAOACA	Mimosa webworm		
ITAPALA	Oak leafminers		
ITBUALA	Orange tortrix		
IRAGACA	Periodical cicada		
IQAMAAA	Plant bugs		
IRAXAAA	Psyllids		
ITAZACA	Puss caterpillar		
IRACCKA	Rose aphid		
ISBEAIA	Roseslug		
IRAAABA	Scales (including black scale, cottony maple scale, European scale, oak kerms scale, oystershell scale, soft brown scale)		
ITAUADA	Tent caterpillars		
IRASAFA	Thornbug		
IMOAAAA	Thrips (exposed)		
INAMDKA	Willow leaf beetle		

Ornamental and/or Shade Trees (including nursery stock) cluster (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
ITBCCFA	Armyworm	1 lb/100 gal or 1 tbls actual*/gal (50-80% WP) or 0.93-1 lb/ 100 gal or 0.156-0.25 oz**/gal (2-5 lb/gal FlC)	Foliar application. Refer to use directions for ants group above.
ITAPAGA	Azalea leafminer		
ITAXAGA	Browntail moth		
ITANABA	Cankerworms		
ITBRAEA	Catalpa sphinx		
IRAUAEA	Cooley spruce gall adelgid		
ITBCABA	Cutworms		
ITPWAIA	Cypress tip moth		
ITAXAEA	Douglas-fir tossock moth		
IRAVADA	Eastern spruce gall adelgid		
ITANAHA	Elm spanworm		
ILAJAAA	Eriophid mites		
ITBGBKA	European pine shoot moth		
ITAUAGA	Forest tent caterpillar		
IOAHAAA	Gall midges		
ISANAAA	Gall wasps		
IVABAAA	Grasshoppers		
ITBNAPA	Greenstriped mapleworm		
IRADAGA	Grenade scale		
IRAXAEA	Hackberry nipplegall maker		
ITBGBIA	Holly bud moth		
IOABALA	Holly leafminer		
ITBUAUA	Jack pine budworm		
ITAMXYA	Jeffrey pine needleminer		
INALAPA	Locust borer		
ITATACA	Maple leafcutter		
ITBEAFA	Mourningcloak butterfly		
ITBGBLA	Nantucket pine tip moth		
ITAYAEA	Oak skeletonizer		
ITBNAOA	Oakworm		
ITAJADA	Oleander caterpillar		
IZZZDRA	Olive ash borer		
ITBNASA	Orangestriped oakworm		
ISAOABA	Pine sawfly		

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Ornamental and/or Shade Trees (including nursery stock) cluster (continued)		
	Pest list continued from previous page.		
RAEABA	Pine spittlebug		
TBGBNA	Pitch pine tip moth		
TBDALA	Red humped oakworm		
NBPAUA	Rose chafer		
TBDAFA	Saddled prominent		
SAAABA	Sawflies (exposed)		
IFAAEA	Sowbugs		
MCAAAA	Springtails		
TBUASA	Spruce budworm		
TBGBPA	Spruce needleminer		
TBGBWA	Subtropical pine tip moth		
TBDABA	Walnut caterpillars		
TAAAMA	Webworms		
TANANA	Western hemlock looper		
TBUATA	Western spruce budworm		
NASEZA	Yellow-poplar weevil		
LAJAAA	Eriophid mites	1-2 lb/100 gal or 1-2 tbls actual*/gal (50-80% WP) or 1-2 lb/100 gal or 0.156-0.25 oz**/gal (2-4 lb/gal FlC)	Foliar application. Tank mix dilute applications with an emulsifiable horticultural oil.

CARBARYL

Ornamental and/or Shade Trees (including nursery stock) cluster (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
INBQBYA INBQAUA INBQAMA ITBGBMA	Ips beetles Mountain pine beetle Round headed pine beetle Western pine beetle	0.2-0.21 lb/ gal/50 sq.ft of bark surface (80% WP) (2-4 lb/gal FlC)	Bark application. Effective as a preventive treatment only. Apply in late May to early June, or prior to beetle attack. Treat trunks from ground level up until trunk diameter is less than 5 inches. Repeat annually as needed to prevent beetle attacks.
ISASAAA ITBCCFA IVAHAAA ITBCABA INBUAAA IMDAAAA IVABAAA IJCAAAA IVAIAAA IIFAAEA	Ants Armyworm Crickets Cutworms Darkling beetles Earwigs Grasshoppers Millipedes Mole crickets Sowbugs	1-2.4 lb/A or 0.04-0.09 oz/ 100 sq.ft (5-29% P/T)	Broadcast appliation. Repeat at 14 day intervals. For cutworms and sowbugs apply in late afternoon.

(Lawns and Turf (including ground covers))

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
33028AA	Dichondra		Keep children and pets off treated area until material is watered in and area dry. Dichondra should be dry before application and the soil slightly moist. After treatment thoroughly wash material from leaf cups into root zone.
INASCCA	Vegetable weevil	1 lb/ 5,000 sq.ft (5-16% G) or 0.57 lb/ 5,000 sq.ft (2.1% G)	Application to established dichondra lawns. Apply in December, January, or early February. Repeat in 8 weeks. May be formulated with aromatic petroleum derivative solvent.
INASAAA ITBCABA IMDAAAA	Ants Cutworms Earwigs	0.438-1.1 lb/ 5,000 sq.ft (1.3-16% G)	Application to established dichondra lawns. May be formulated with aromatic petroleum derivative solvent.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
3007AA	Golf Course Turf		Keep children and pets off treated area until material is watered in and area dry.
3010AA	Lawns		
3008AA	Turf		
SASAAA	Ants	0.94-1.24 lb/ 5,000 sq.ft [150-200 gal/5,000 sq.ft] (50-85% WP) (5-50% WP/D) (2-5 lb/gal FlC) (5-42.6% FlC)	Application to established lawns and turf. Mow lawn, remove clippings, and apply after rain or watering. Apply by garden hose sprayers or pressure type equipment and ensure good penetration of turf. Do not water for 2 days following application. Repeat at 14 to 21 day intervals. Spreader stickers may be added to sprays. Extenders may be added to sprays of flowable concentrate formulations to increase time between applications. For fall armyworm and sod webworm, apply in the late afternoon. For chinch bug and sod webworm, cut lawn or turf closely before application.
QALAEA	Chinch bug		
VAHAAA	Crickets		
TBCABA	Cutworms		
MDAAAA	Earwigs		
TBCCOA	Fall armyworm		
RAFAAA	Leafhoppers		
JCAAAA	Millipedes		
TBMABA	Sod webworms		
	Ants	0.9-1.25 lb/ 5,000 sq.ft (2.65-10% D) (1.25-20% G) (10% WP/D)	Application to established lawns and turf. Mow lawn, remove clippings, and apply after rain or watering. Apply by conventional lawn spreaders for even coverage. Water following treatment. Repeat at 14 to 21 day intervals. For fall armyworm and sod webworm apply in the late afternoon. For chinch bug and sod webworm, cut lawn or turf closely before application.
	Chinch bug		
	Crickets		
	Cutworms		
	Earwigs		
	Fall armyworm		
	Leafhoppers		
	Millipedes		
	Sod webworms		
INASDYJ	Bluegrass billbug (adults)	0.9 lb/ 5,000 sq.ft (2.56% D) or 1.25-1.38 lb/ 5,000 sq.ft (4.6-20% G)	May be formulated with aromatic petroleum derivative solvent; or petroleum distillate.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Golf Course Turf cluster (continued)		
ISASAAA	Ants	2-4 oz/ 5,000 sq.ft (5-20% P/T)	Bait application to established lawns and turf. Mow lawn, remove clippings, and apply after rain or watering. Do not water for 24 hours following treatment. Repeat at 14 day intervals. For cutworms and sowbugs, apply in late afternoon.
ITBCCFA	Armyworms		
IVAHAAA	Crickets		
ITBCABA	Cutworms		
INBUAAA	Darkling beetles		
IMDAAAA	Earwigs		
IVABAAA	Grasshoppers		
IJCAAAA	Millipedes		
IVAIAAA	Mole crickets		
IIFAAEA	Sowbugs		
ITBCCFA	Armyworms	1 lb/ 150-200 gal/ 5,000 sq.ft (50-80% WP) (2-4 lb/gal FlC)	Application to established lawns and turf. Mow lawn, remove clippings, and apply after rain or watering. Apply by garden hose sprayers or pressure type equipment and ensure good penetration of turf. Repeat at 14 to 21 day intervals.
INASDYA	Bluegrass billbug		
IJBAAAA	Centipedes		
ITASAIA	Essex skipper		
INBPAGA	European chafer		
ITASADA	Fiery skipper		
IVABAAA	Grasshoppers		
INBPADA	June beetles		
ITBCDGA	Lucerne moth		
IIFAAEA	Sowbugs		
IMCAAAA	Springtails		
ITBCCQA	Yellowstriped armyworm		
IQALAEA	Chinch bug	1.5 lb/ 150-200 gal/ 5,000 sq.ft (2-4 lb/gal FlC)	
INBPAAA	White grubs		
ISASAAA	Ants	0.5-1.1 lb/ 5,000 sq.ft (1.3-2.1% G)	Preplant soil application. Broadcast uniformly over soil surface. Work into top 3 inches of soil.
IQALAEA	Chinch bug		
ITBCCOA	Fall armyworm		
ITBMABA	Sod webworms		

CARBARYL

FOREST, CHAPARRAL, NONAGRICULTURAL AND WASTELANDS (including tree plantations, and Christmas tree plantations)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
30005AA	Christmas Tree Plantations		0.5 ppm maple sap
30000AA	Forest Trees, Forest Lands, Forest Plantations		For aerial and concentrate ground applications, apply specific dosage per acre in sufficient water to provide thorough coverage. Avoid direct application to lakes, streams and ponds. Changed. use now allowed
67002AA	Recreational Areas and Parks		
30007AA	Shelterbelt Plantings		
ITBKABA	Bagworms	1 lb/100 gal or 0.8-1 lb/A (80% WP) or 1 lb/100 gal or 1 lb/A (2-4 lb/gal FlC)	Delayed dormant or foliar application. Apply dilute sprays to obtain thorough coverage of upper and lower leaf surfaces. For larval control, treat in early instars. For scale insects, apply sprays to stem, twigs, and bark in addition to foliage when crawlers are present. Addition of stickers may improve residual control. For control of Gypsy moth on eastern hardwoods, delay application until leaves are one third to one half grown. For control of western tent caterpillar on aspen, aerial applications of wettable powder formulation may be applied in 1 gallon of fuel oil per acre.
ISBEAMA	Birch leafminer		
IQAUACA	Boxelder bug		
ITAXAGA	Browntail moth		
ITANABA	Cankerworms		
ITBRAEA	Catalpa sphinx		
ILAWAAA	Chigger mites		
IRAUAEA	Cooley spruce gall adelgid		
ITPWAIA	Cypress tip moth		
ITAXAEA	Douglas-fir tussok moth		
IRAVADA	Eastern spruce gall adelgid		
ITANAHA	Elm spanworm		
ILAJAAA	Eriophid mites		
ITBGBKA	European pine shoot moth		
ITAUAGA	Forest tent caterpillar		
IOAHAAA	Gall midges		
ISANAAA	Gall wasps		
IVABAAA	Grasshoppers		
ITBNAPA	Greenstriped mapleworm		
ITAXAIA	Gypsy moth		
IRAXAEA	Hackberry nipple-gall maker		
ITBUAUA	Jack pine budworm		
INBPAZA	Japanese beetle		
ITAMXYA	Jeffrey pine needleminer		
IMAAAEA	Leafrollers		
INALAPA	Locust borer		
ITATACA	Maple leafcutter		
IRAWAAA	Mealybugs		
ITBEAFA	Mourningcloak butterfly		
ITAOACA	Mimosa webworm		

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Site and Pest **Dosages and Formulation(s)** **Tolerance, Use, Limitations**

Christmas Tree Plantations cluster (continued)

Pest list continued from previous page.

ITBGBLA	Nantucket pine tip moth
ITAPALA	Oak leafminers
ITAYAEA	Oak skeletonizer
ITBNADA	Oakworm
IZZZDRA	Olive ash borer
ITBNASA	Orangestriped oakworm
ITBUALA	Orange tortrix
IRAGACA	Periodical cicada
ISAOABA	Pine sawfly
IRAEABA	Pine spittlebug
ITBGBNA	Pitch pine tip moth
IRAXAAA	Psyllids
ITAZACA	Puss caterpillar
ITBDALA	Red humped oakworm
ITBDAFA	Saddled prominent
ISAAABA	Sawflies (exposed)
IRAAABA	Scales
ITBUASA	Spruce budworm
ITBGBPA	Spruce needleminer
ITBGBWA	Subtropical pine tip moth
ITAUADA	Tent caterpillars (including western tent caterpillars)
IRASAFA	Thornbug
IMOAAAA	Thrips (exposed)
ILAAACA	Ticks
ITBDABA	Walnut caterpillars
ITAAAMA	Webworms
ITANANA	Western hemlock looper
ITBUATA	Western spruce budworm
INASEZA	Yellow-poplar weevil

CARBARYL

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Christmas Tree Plantations cluster (continued)		
BQBYA	Ips beetles	0.2-0.21 lb/ gal/50 sq.ft of bark surface (80% WP) (2-4 lb/gal FlC)	Bark application. Effective as a preventative treatment only. Apply in late May to early June or prior to beetle attack. Treat trunks from ground level up until trunk diameter is less than 5 inches. Repeat annually as needed to prevent beetle attacks.
BQAUA	Mountain pine beetle		
BQAMA	Roundheaded pine beetle		
BGBMA	Western pine beetle		
005AA	Christmas Tree Plantations		0.5 ppm maple sap Avoid direct application to lakes, streams and ponds. May kill shrimp or crabs. Do not apply where these are important resources. Apply in early morning or evening when air is calm and adults are active. Repeat at 7 to 10 day intervals.
006AA	Forest Trees, Forest Lands, Forest Plantations		
7002AA	Recreational Areas and Parks		
0007AA	Shelterbelt Plantings		
7000AA	Uncultivated Non-Agricultural Areas (including logging camps, military areas and adjacent forested lands, and wastelands)		
OAMAAJ	Mosquitoes (adults)	0.25-0.5 lb/A (5-10% D) or 0.25-0.53 lb/100 gal	Foliar application. Apply by airblast dusters or mist blowers. Thorough coverage is essential for effective control.
		0.5-10lb/A) (80% WP)gal (2-4)lb/gal FlC)	Foliar application. Apply by aircraft in sufficient water for thorough coverage.
		0.25-1 lb/A (5-10% D) (50-80% WP) (2-4 lb/gal FlC)	Foliar application. Apply by low pressure ground sprayers or dusters.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Christmas Tree Plantations cluster (continued)		
		1 lb/100 gal (50-80% WP) (2-4 lb/gal F1C) or 1-1.6 tbls* actual/gal (50-80% WP) or 1.67-0.25 oz**/gal (2-4 lb/gal F1C)	Foliar application. Apply by dilute ground equipment or hand sprayers to small or limited areas. Thoroughly cover foliage such as shrubbery, flower beds, turf, and shaded areas around buildings where adult mosquitoes congregate. Avoid application to Boston ivy, Virginia creeper, maidenhair fern, sand pine (in early season), or Virginia pine (in early season).
		25 lb/A or 0.5 lb/2 gal/ 1,000 sq.ft (80% WP) (2-4 lb/gal F1C)	Foliar application. For residual control in subtropical regions. Repeat at 3 to 6 month intervals.
AIAAA AUAFA AMAAA	Biting midges House fly Mosquitoes	0.3 lb/A (1% D)	Foliar application. Apply by power duster or large hand duster to wooded areas.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
67000AA	Uncultivated Non-Agricultural Areas (including borders, ditch banks, and wastelands)		For 3.8 and 4 pound per gallon flowable concentrate or ready to use formulations. May be applied by aircraft undiluted or diluted with diesel fuel, number 2 fuel oil, or kerosene. May be applied by ground mist blowers or cold fogging when diluted with aliphatic compounds mentioned above. Refer to manufacture's directions for additional information on dilution rates, nozzles, and calibration. Do not mix with alcohol, water, or aromatic solvents. Do not mix with fertilizers. Formulated with petroleum distillate.
IQANAJA	Black grass bug	0.6-1.2 lb/A (3.8-4 lb/ gal FlC or RTU)	Ultra low volume or low volume foliar application. Apply the lower rate for immature bugs in sparse vegetation and the higher rate for mature bugs or when vegetation is thick.
IVABAAA	Grasshoppers	0.6-1.78 lb/A (3.8-4 lb/ gal FlC or RTU)	Ultra low volume or low volume foliar application. Apply the lower rate for nymphs on small plants or in sparse vegetation and the higher rate for grasshoppers are mature or when vegetation is thick.
INBPAZA	Japanese beetle	1.2 lb/A (3.8-4 lb/ gal FlC or RTU)	Ultra low volume or low volume foliar application. Apply when adults are present.
ITBNAJA	Range caterpillar	0.6-1.2 lb/A (3.8-4 lb/ gal FlC or RTU)	Ultra low volume or low volume foliar application. Apply the lower rate when larvae are in early instars and the higher rate for later instars.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Uncultivated Non-Agricultural Areas (including borders, ditch banks, and wastelands) (continued)		
IVABAAA	Grasshoppers	0.5-1.5 lb/A (2-10% D) (50-80% WP) (2-4 lb/gal F1C)	Foliar application. Apply the lower half of the dosage range for control of nymphs or sparse vegetation and the upper range when grasshoppers are mature or when area requires greater coverage. Flowable concentrates may be applied by aircraft and low volume equipment.
ITBCCFA IVAHAAA ITBCCOA IVABAAA	Armyworms Crickets Fall armyworm Grasshoppers	1-2 lb/A (10-20% P/T)	Broadcast soil application. May be applied by aircraft. Apply the lower rate for early instars, or nymphs, or when vegetation is sparse and the higher rate for later instars or mature crickets and grasshoppers or when vegetation is dense.
	DOMESTIC DWELLINGS, MEDICAL FACILITIES AND SCHOOLS		
63001JC	Domestic Dwellings (Indoor)		
ISASAAA IVAAABA	Ants Cockroaches	2-2.5% susp. (80% WP) (2-4 lb/gal F1C)	Use limited to Professional Pest Control Operators. Premise treatment. Apply as a course wet spray or with a paint brush. Thoroughly treat cracks and crevices, baseboards, corners, walls, door sills, window frames, pet quarters, ant trails, outside perimeter of dwellings and places where pests tend to congregate. Apply up to 2 times per 7 day interval. Do not use as a space spray. Do not use as where edible products are exposed, being prepared, processed, or served. Avoid application to surfaces where visible residues are objectionable. Fresh bedding should be replaced in animal quarters following treatment. Do not treat animals. Do not spray kennels or animal areas until animals have been removed.
ILAMAQA IMDAAAA IMNAAAA ITCAAAA IMPBACA	Brown dog tick Earwigs Fleas Millipedes Silverfish	0.8-1.2% susp. (80% WP) (2-4 lb/gal F1C)	

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Domestic Dwellings (Indoor) (continued)		
AAACA	Bees	--	Locate nest in wall, bore a one quarter inch hole in wall at nest site, insert nozzle, and inject dust. If hole is undesirable, sprinkle dust around nest and pump dust into enterance. Do not eat honey from treated bee hives.
BIADA	Hornets	(5% D)	
AAADA	Wasps		
NAAAA	Fleas	-- (5% D)	Sprinkle lightly on floors, rugs, and furniture. Remove with a vacuum cleaner after a period of 1 to 2 hours.
AMAAJ	Mosquitoes (adults)	1 qt 2-2.5% susp./ 120 sq.ft (80% WP) (2-4 lb/gal FlC)	Use limited to Professional Pest Control Operators. Use limited to subtropic and tropical areas. Treat interior and exterior wall surfaces, ceilings, eaves, and roofs of dwellings constructed of wood, bamboo, metal, cement, brick, thatch, or whitewashed clay. Repeat at 3 to 6 month intervals. Do not treat rugs, carpets, drapes, and other fabrics as staining may result. Avoid application to structural surfaces where visible spray residue and water stains are objectionable.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
63003AA	Domestic Dwellings (Outdoor)		Avoid application to Boston ivy, maidenhair fern, Virginia creeper, sand pine (in early season), and Virginia pine (in early season).
ISASAAA	Ants	0.9-1.25 lb/ 5,000 sq.ft (2.65-10% D) (1.25-20% G) (50-85% WP) (10-50% WP/D) (2-5 lb/gal FlC) (5-42.6% FlC) or 2-5 oz/ 5,000 sq.ft (5-20% PT)	Application to established lawns. Control of pests is a result of a lawn pest control program. Mow lawn, remove clippings and apply for even coverage. Keep children and pets off treated areas until material is watered in and area is dry. May be formulated with aromatic petroleum derivative solvent; or petroleum distillate.
IMNAAAA	Fleas		
IOAMAAA	Mosquitoes		
ILAAACA	Ticks		
ILAWAAA	Chigger mites	0.5 lb/ 5,000 sq.ft (3.34-10% G) or 1 lb/5,000 sq.ft (80% WP) (2-4 lb/gal FlC)	
ISASAAA	Ants	1 tbls 4.6% G/ant-hill or nest (4.6% G) or -- (6.8% G) (10% WP/D)	Spot treatment. For ants, apply to hills and wash into soil. For digger wasps, apply at dusk when pests are less active.
ISBCAEA	Digger wasps		

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Domestic Dwellings (Outdoor) (continued)		
ISASAAA ILAMAQA ILAWAAA IVAAABA IVAHAAA INBUAAA IMDAAAA IMNAAAA IJCAAAA IJBEAAA IIFAEAA ILAAACA	Ants Brown dog tick Chigger mites Cockroaches Crickets Darkling beetles Earwigs Fleas Millipedes Scorpions Sowbugs Ticks	0.5-1 lb/ 5,000 sq.ft (10% D) (2-10% G) (50% WP) (10% WP/D) or 1.25 oz/gal (25% FlC) or 2-4.5 oz/ 5,000 sq.ft (5-20% PT)	Outdoor treatment. Treat areas around foundations, porches where pests are found. Granular and dust materials may be worked in with coarse spray. Repeat at 14 to 21 day intervals.
ILAWAAA ILAAACA	Chigger mites Ticks	1 tbls actual*/gal (50-80% WP) or 0.167-0.25 oz**/gal (2-4 lb/gal FlC)	Outdoor treatment. Apply to shrubs and other ornamentals when pests appear.
IMDAAAA IJCAAAA	Earwigs Millipedes	0.5-0.75 lb/ 5,000 sq.ft (5-10% D)	Outdoor treatment. Apply to soil surfaces, mulch, and debris around moist shady areas.
IMNAAAA	Fleas	0.25-0.5 lb/ 5,000 sq.ft (5-10% D)	Outdoor treatment. Apply to pens, yards, lawns and under buildings around the home. Force dust into cracks and crevices.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	Domestic Dwellings (Outdoor) (continued)		
OAMAAJ	Mosquitoes (adults)	0.25-0.5 lb/ 5,000 sq.ft (5-10% D)	Outdoor treatment. Apply to lawns, shrubs, and other vegetation around the home. Repeat as needed.
		1-1.6 tbls* actual/gal (50-80% WP) or 1.67-0.25 oz**/gal (2-4 lb/gal FlC)	Outdoor treatment. Apply by hand sprayers to yards. Thoroughly cover foliage of shrubs, flower beds, grass, and shade areas around buildings where adult mosquitoes congregate. Apply in early morning or evenings when air is calm and mosquitoes are active. Repeat at 7 to 10 day intervals.
ILAAACA	Ticks	0.125-0.25 lb/5,000 sq.ft (5-10% D)	Outdoor treatment. Apply to ground, debris, and vegetation to a height of 2 feet on lawns, vacant fields, and wooded areas around the home. Repeat as needed.
89001JA	Garbage Cans		
ISASAAA	Ants	0.32 oz/100 sq.ft (2% G)	Outdoor treatment. Apply evenly with shaker can.
	URBAN AND RURAL/INDOOR AND OUTDOOR AREAS (Public Health)		
68015AA	Plague Reservoir Host Animal Premises		For use only by or under supervision of Federal or state public health or wildlife officials.
INMAAAA	Fleas (plague vectors)	0.1 oz/ burrow (5-10% D)	Apply by hand or power applicator.
		0.2 oz/bait station (5-10% D)	Apply 4 to 6 bait stations per acre.
		1 lb/A (5-10% D)	Apply by hand or power applicator as and area dust treatment.

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
67002JA	Recreational Areas (Indoor)		
ISASAAA	Ants	2-2.5% suspension (80% WP) (2-4 lb/gal F1C)	Use limited to Professional Pest Control Operators. Premise treatment. Apply as a course wet spray or with a paint brush. Thoroughly treat cracks and crevices, baseboards, corners, walls, door sills, window frames, pet quarters, ant trails, outside perimeter of dwellings and places where pests tend to congregate. Apply up to 2 times per 7 day intervals. Do not use as a space spray. Do not use as where edible products are exposed, being prepared, processed, or served. Avoid application to surfaces where visible residues are objectionable.
IVAAABA	Cockroaches		
ILAMAQA	Brown dog tick	0.8-1.2% suspension (80% WP) (2-4 lb/gal F1C)	
IMDAAAA	Earwigs		
IMNAAAA	Fleas		
IJCAAAA	Millipedes		
IMPBACA	Silverfish		
67002AA	Recreational Areas and Parks (Outdoor)		Avoid direct application to lakes, streams and ponds. May kill shrimp or crabs. Do not apply where these are important resources.
ILAWAAA	Chigger mites	0.9-1 lb/ 5,000 sq.ft (4.6-10% D) (50-80% WP) (2-4 lb/gal F1C)	Foliar application to recreational areas, path borders, roadways, or turf areas. Apply for even coverage. Keep children and pets off treated area until material is watered in and area is dry.
IMNAAAA	Fleas		
IOAMAAA	Mosquitoes		
ILAACA	Ticks		

Recreational Areas and Parks (Outdoor) (continued)

	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
LAWAAA LAAACA	Chigger mites Ticks	1 lb/100 gal or 1 lb/A (80% WP) (2-4 lb/gal FlC) or 1 tbls actual*/gal (80% WP) or 0.167-0.25 oz**/gal (2-4 lb/gal FlC)	Foliar application. For aerial and concentrate applications, apply in sufficient water for thorough coverage. Addition of stickers may improve residual control.
OAMAAJ	Mosquitoes (adults)	0.25-0.53 lb/100 gal (50-80% WP) (2-4 lb/gal FlC)	Foliar application. Apply by mist blowers. Thorough coverage is essential for effective control. Apply in early morning or evening when air is calm and adults are active. Repeat at 7 to 10 day intervals.
		0.5-1 lb/A (80% WP) (2-4 lb/gal FlC)	Foliar application. Apply by aircraft in sufficient water for thorough coverage. Apply in early morning or evening when air is calm and adults are active. Repeat at 7 to 10 day intervals.
		0.25-1 lb/A (50-80% WP) (2-4 lb/gal FlC)	Foliar application. Apply by low pressure ground sprayers in sufficient water for thorough coverage. Apply in early morning or evening when air is calm and adults are active. Repeat at 7 to 10 day intervals.

Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
Recreational Areas and Parks (Outdoor) (continued)		
	1 lb/100 gal (50-80% WP) (2-4 lb/gal FlC) or 1-1.6 tbls* actual/gal (50-80% WP) or 1.67-0.25 oz**/gal (2-4 lb/gal FlC)	Foliar application. Apply by high volume ground equipment or hand sprayers to small or limited areas. Thoroughly cover foliage such as shrubbery, flower beds, turf, and shaded areas around buildings where adult mosquitoes congregate. Avoid application to Boston ivy, Virginia creeper, maidenhair fern, sand pine (in early season), or Virginia pine (in early season). Repeat at 7 to 10 day intervals.
	25 lb/A or 0.5 lb/2 gal/ 1,000 sq.ft (80% WP) (2-4 lb/gal FlC)	Foliar application. For residual control in subtropical regions. Repeat at 3 to 6 month intervals.

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	Site and Pest	Dosages and Formulation(s)	Tolerance, Use, Limitations
	COMMERCIAL ESTABLISHMENTS		
	(Commercial Establishments (areas other than edible product))		
000JC	Commercial, Institutional, and Industrial Areas		
000JC	Eating Establishments		
000JC	Food Marketing, Storage and, Distribution Facilities		
000JC	Food Processing, Handling and, Storage Plants/Areas		
ASAAA AAABA	Ants Cockroaches	2-2.5% suspension (80% WP) (2-4 lb/gal F1C)	Use limited to Professional Pest Control Operators. Premise treatment. Apply as a course wet spray or with a paint brush. Thoroughly treat cracks and crevices, baseboards, corners, walls, door sills, window frames, pet quarters, ant trails, outside perimeter of dwellings and places where pests tend to congregate. Apply up to 2 times per 7 day interval. Do not use as a space spray. Do not use as where edible products are exposed, being prepared, processed, or served. Avoid application to surfaces where visible residues are objectionable.
AMAQA DAAAA NAAAA CAAAA MPBACA	Brown dog tick Earwigs Fleas Millipedes Silverfish	0.8-1.2% suspension (80% WP) (2-4 lb/gal F1C)	

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Site and Pest | Dosages and Formulation(s) | Tolerance, Use, Limitations

AERIAL, MOTHPROOFING AND TANK MIX APPLICATIONS

9001500 Aerial Application
AAAAAAA

--

Refer to
AGRICULTURAL CROPS
All sites
ORNAMENTALS
(Ornamental Plants (herbaceous, woody shrubs, trees and vines))
All sites
FOREST, CHAPARRAL, NONAGRICULTURAL AND WASTELAND
All sites

9900300 Tank Mix
AAAAAAA

--

Refer to
AGRICULTURAL CROPS
Citrus Fruits, Olive
ORNAMENTALS
(Ornamental Plants (herbaceous, woody shrubs, trees and vines))
Ornamental and/or Shade Trees (including nursery stock), Ornamental Woody Shrubs and Vines (including Nursery Stock)

Listing of Registered Pesticide Products by Formulation

95% technical chemical

carbaryl (056801)

000264-00329

97.5% technical chemical

carbaryl (056801)

000264-00325 004816-000270

99% technical chemical

carbaryl (056801)

000264-00324

9% formulation intermediate

carbaryl (056801)

002724-00243

46% formulation intermediate

carbaryl (056801)

005481-00190

50% formulation intermediate

carbaryl (056801)

000148-00623 000264-00313 000264-00327 000476-01886
001598-00199 002124-00370 002459-00255 003743-00180
005905-00338

80% formulation intermediate

carbaryl (056801)

000239-01829 000264-00328 000769-00450 001598-00227

85% formulation intermediate

carbaryl (056801)

000264-00326

1.5% dust

carbaryl (056801)

004185-00158

1.75% dust

carbaryl (056801)

000016-00028 000016-00071 000070-00200 000072-00355
000226-00143 000226-00206 000239-01570 000635-00521
000769-00236 000829-00131 001127-00060 002124-00565
002459-00127 002917-00069 003342-00056 005797-00056
005927-00008 007401-00291 042463-00001

2% dust

carbaryl (056801)

000016-00012 000595-00250 000635-00196 001772-00042
003743-00256 012130-00012

Listing of Registered Pesticide Products by Formulation (continued)

2.5% dust
carbaryl (056801)
000004-00134 037509-00001

2.65% dust
carbaryl (056801)
008780-00021

3% dust
carbaryl (056801)
000148-01025 000595-00247 000829-00133 001386-00446
002342-00816 004185-00136 008590-00043

5% dust
carbaryl (056801)
000004-00143 000016-00015 000016-00027 000016-00069
000070-00002 000070-00166 000072-00345 000148-00735
000148-01031 000148-01032 000149-00005 000192-00070
000226-00145 000226-00147 000226-00207 000239-01349
000239-02181 000240-00136 000279-01418 000279-01642
000299-00119 000299-00121 000299-00143 000299-00144
000327-00098 000407-00281 000410-00076 000419-00148
000430-00030 000449-00307 000468-00011 000476-01428
000476-01999 000477-00185 000550-00046 000557-01613
000557-01931 000572-00107 000595-00252 000635-00243
000682-00051 000682-00053 000728-00058 000746-00101
000769-00306 000769-00405 000769-00418 000778-00001
000779-00045 000802-00273 000802-00442 000829-00128
000829-00159 000869-00005 000869-00118 000904-00191
000904-00264 000912-00053 001007-00077 001127-00061
001159-00128 001191-00244 001202-00300 001258-01024
001339-00159 001348-00204 001386-00451 001386-00515
001526-00504 001598-00092 001772-00053 001772-00083
001812-00037 001842-00184 001871-00083 001990-00238
002006-00059 002124-00514 002125-00040 002169-00214
002217-00383 002217-00572 002269-00075 002301-00012
002342-00792 002342-00831 002382-00018 002393-00174
002393-00375 002459-00134 002459-00140 002491-00234
002517-00017 002517-00018 002553-00032 002553-00033
002553-00035 002596-00047 002724-00075 002935-00193
003286-00007 003325-00069 003342-00051 003468-00048
003509-00035 003509-00083 003509-00117 003743-00134
003770-00108 003772-00012 004139-00026 004185-00154
004578-00007 004876-00007 004887-00074 004931-00072
004972-00055 005131-00005 005481-00058 005481-00098
005535-00082 005549-00010 005719-00036 005719-00080
005797-00057 005887-00043 005905-00048 005905-00309
005927-00007 006175-00009 006248-00012 006720-00064
006720-00078 006735-00014 006853-00012 007001-00214
007225-00006 007273-00052 007393-00016 007401-00069
007567-00001 008220-00026 008222-00046 008344-00001

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Listing of Registered Pesticide Products by Formulation (continued)

5% dust (continued)

008344-00014 008590-00120 008590-00235 008590-00257*
008590-00291 008612-00079 008620-00033 009275-00015
009404-00010 009468-00008 009779-00074 009779-00190
009859-00089 009859-00161 009859-00186 010159-00002
010290-00026 010517-00001 012130-00013 014782-00002
020954-00072 033955-00462 034704-00026 034911-00006
035138-00013 036272-00014 040940-00022 042057-00042
042057-00085 042463-00002 043288-00003 044317-00022

*Jacket currently unavailable for review

7.5% dust

carbaryl (056801)

000148-00686 000148-01022 000226-00170 000239-01361
000299-00155 000476-01323 000557-01832 000635-00322
000769-00228 001202-00142 001339-00137 001386-00472
001812-00067 001842-00200 002124-00283 002459-00139
002917-00068 003051-00047 003743-00304 005905-00043
005905-00319 007001-00215 008620-00048 008934-00007
009779-00082 009779-00180 009859-00150

10% dust

carbaryl (056801)

000016-00098 000070-00165 000148-00633 000148-01027
000226-00144 000239-01513 000279-01498 000279-01569
000299-00117 000373-00079 000407-00305 000416-00067
000430-00049 000449-00362 000476-01385 000550-00047
000557-01870 000635-00252 000769-00229 000769-00315
000802-00268 000829-00200 001191-00245 001202-00154
001208-00032 001258-01022 001339-00136 001386-00514
001526-00443 001598-00082 001812-00064 001842-00197
001871-00084 002124-00497 002269-00074 002342-00728
002393-00225 002459-00135 003286-00045 003342-00069
003509-00091 003743-00277 004139-00027 004185-00151
004887-00076 005481-00108 005549-00008 005605-00083
005797-00055 005905-00044 005905-00317 005927-00012
006720-00136 006735-00015 006754-00070 006853-00013
007001-00179 007401-00154 007401-00166 008344-00007
008612-00080 008620-00032 009275-00010 009779-00081
009779-00181 009859-00039 009859-00149 012130-00014
034704-00025 040940-00020 042463-00004 044317-00021

20% dust

carbaryl (056801)

005905-00342

25% dust

carbaryl (056801)

042463-00007

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Listing of Registered Pesticide Products by Formulation (continued)

50% dust
carbaryl (056801)
000148-01082 000635-00550 000769-00361 001258-01026
004185-00411 005905-00069 006735-00135 009779-00061
009779-00182 012130-00002

xx% dust
carbaryl (056801)
008590-00079*
*Jacket currently unavailable for review

1.25% granular
carbaryl (056801)
006482-00006

1.3% granular
carbaryl (056801)
000539-00245

1.75% granular
carbaryl (056801)
000557-01779

1.786% granular
carbaryl (056801)
007401-00051

2% granular
carbaryl (056801)
000539-00266 007401-00148

2.05% granular
carbaryl (056801)
020954-00041

2.1% granular
carbaryl (056801)
008590-00353*
*Jacket currently unavailable for review

2.3% granular
carbaryl (056801)
010942-00005

3.34% granular
carbaryl (056801)
007401-00043

4.55% granular
carbaryl (056801)
002491-00217

Listing of Registered Pesticide Products by Formulation (continued)

4.6% granular
carbaryl (056801)
000004-00142

5% granular
carbaryl (056801)
000004-00232 000192-00015 000239-02245 000264-00317
000279-01991 000279-02653 000769-00413 000802-00493
000961-00262 001339-00190 002342-00715 002393-00209
003442-00678 003770-00296 005481-00090 005905-00168
005967-00105 006720-00254 007001-00168 008940-00001
008940-00006 009779-00156 010163-00032 011656-00021
032182-00001 034704-00023 042057-00088

carbaryl (056801) plus aromatic petroleum derivative solvent (006501)
006720-00253

6% granular
carbaryl (056801)
002217-00451

6.24% granular
carbaryl (056801)
000557-01780

6.25% granular
carbaryl (056801)
000779-00055 001159-00176

7.15% granular
carbaryl (056801)
000961-00290

7.5% granular
carbaryl (056801)
005535-00083

8% granular
carbaryl (056801)
000572-00204

8.75% granular
carbaryl (056801)
000538-00047

Listing of Registered Pesticide Products by Formulation (continued)

10% granular

carbaryl (056801)

000148-00977 000407-00304 000407-00305 000449-00399
000572-00161 000635-00654 001029-00069 001767-00089
002217-00549 002393-00208 002393-00228 003770-00265
005481-00089 005905-00169 034704-00013

14.29% granular

carbaryl (056801)

002491-00199

15% granular

carbaryl (056801)

005905-00180 034704-00012

16% granular

carbaryl (056801)

000538-00067

20% granular

carbaryl (056801)

000004-00177 006621-00043

2.1% pelleted/tableted

carbaryl (056801)

000239-02362

5% pelleted/tableted

carbaryl (056801)

000239-02235 000264-00320 000407-00327 001202-00185
001209-00128 002393-00213 002935-00366 005719-00046
006720-00255

10% pelleted/tableted

carbaryl (056801)

000264-00312

20% pelleted/tableted

carbaryl (056801)

000264-00311

50% wettable powder

carbaryl (056801)

000004-00133 000016-00099 000016-00120 000072-00322
000148-00986 000226-00161 000239-01701 000239-01434
000264-00314 000279-01512 000299-00141 000327-00128
000407-00287 000419-00162 000449-00436 000468-00017
000477-00178 000539-00169 000572-00106 000572-00160
000602-00162 000635-00348 000728-00064 000769-00271
000779-00043 000779-00076 000802-00358 000829-00142
000869-00066 000904-00214 001159-00127 001348-00173

Listing of Registered Pesticide Products by Formulation (continued)

50% wettable powder (continued)

001386-00445 001767-00064 001772-00043 001812-00101
002125-00063 002169-00165 002217-00366 002217-00389
002393-00220 002393-00316 002749-00151 003286-00009
003743-00213 003770-00055 003772-00013 004185-00302
004185-00416 004758-00077 004931-00091 005481-00065
005535-00038 005062-00056 005605-00049 005887-00086
006035-00052 006835-00018 006830-00053 006993-00048
007395-00015 008590-00017 008590-00021 008590-00266
008923-00001 033955-00450 042057-00038

80% wettable powder
carbaryl (056801)
000148-01128 000264-00316 002749-00204 019713-00050

85% wettable powder
carbaryl (056801)
000070-00171 000264-00315 000299-00158 004876-00038

2% wettable powder/dust
carbaryl (056801)
001772-00042

5% wettable powder/dust
carbaryl (056801)
001767-00065

10% wettable powder/dust
carbaryl (056801)
000004-00078

50% wettable powder/dust
carbaryl (056801)
004931-00100

8.5% impregnated materials
carbaryl (056801)
002724-00272

9% impregnated materials
carbaryl (056801)
002724-00173 002724-00203 002724-00241

12% impregnated materials
carbaryl (056801)
002724-00242

16% impregnated materials
carbaryl (056801)
002724-00273

CARBARYL

Listing of Registered Pesticide Products by Formulation (continued)

1.6 lb/gal flowable concentrate

carbaryl (056801)
007401-00208

2 lb/gal flowable concentrate

carbaryl (056801)
000004-00237 000072-00500 000264-00334 000407-00383
000499-00514 000449-00518 000476-02104 000769-00490
000779-00092 000904-00208 000904-00241 002125-00061
002169-00207 002217-00600 005887-00102 005887-00108
006720-00080 006973-00008 007401-00210 009404-00009
033955-00533 042057-00093

2.36 lb/gal flowable concentrate

carbaryl (056801)
000869-00134

3.8 lb/gal flowable concentrate

carbaryl (056801)
000264-00337

4 lb/gal flowable concentrate

carbaryl (056801)
000004-00167 000148-01147 000226-00209 000264-00321
000264-00333 000264-00335* 000343-00027 000449-00519
000476-01347 000572-00221 000635-00677 000769-00493
000779-00069 000829-00239 000904-00137 001812-00248*
002393-00255 005887-00089 005905-00251 006735-00232
007001-00105 007001-00194 008590-00419 009859-00238
010163-00060 012434-00003 034704-00024

*Jacket currently unavailable for review

5 lb/gal flowable concentrate

carbaryl (056801)
000072-00454 009859-00092

0.5% flowable concentrate

carbaryl (056801), ethanol (001501), ethoxylated lanolin (031607), disodium ethylenediaminetetraacetate (039115) plus ammonium lauryl sulfate (888888)
002097-00008

5% flowable concentrate

carbaryl (056801)
005719-00035

10% flowable concentrate

carbaryl (056801)
000802-00477

21.5% flowable concentrate

carbaryl (056801)
000016-00076 000557-01944

Listing of Registered Pesticide Products by Formulation (continued)

23% flowable concentrate
carbaryl (056801)
011287-00009

25% flowable concentrate
carbaryl (056801)
000192-00094 007401-00083 008222-00047

27% flowable concentrate
carbaryl (056801)
000239-02356

41.8% flowable concentrate
carbaryl (056801)
005535-00072 005605-00091

42.6% flowable concentrate
carbaryl (056801)
001767-00084

2 lb/gal liquid-ready to use
carbaryl (056801)
000449-00514

3.8 lb/gal liquid-ready to use
carbaryl (056801) plus petroleum distillate (063503)
000264-00337

4 lb/gal liquid-ready to use
carbaryl (056801)
000264-00321 000343-00027 000635-00677 001812-00248

carbaryl (056801) plus petroleum distillate (063503)
000264-00323

0.5% liquid-ready to use
carbaryl (056801)
000778-00015

0.5% pressurized liquid
carbaryl (056801)
000778-00032

State Label Registrations

AR Reg. No.

001016-06729

AZ Reg. No.

001016-07050 001202-05012 001526-03810 001526-03817
001526-03818 001526-03819 002935-06577 011656-05725
023529-09277 037832-08446 037915-09434 037915-09436

CA Reg. No.

000239-04144 000239-04150 000239-04151 000239-04241
000279-03219 000279-03896 000279-03999 000279-04012
000909-04646 000909-04648 000909-04649 001016-06730
001016-06731 001016-06732 001202-05048 001202-05050
002935-06671 005481-03855 005719-04894 005967-05148
005967-05149 006973-03582 006973-03583 007001-07697
007001-07698 007729-04636 007729-06056 007729-06062
007729-06063 007729-06064 008434-04729 010226-03776
010963-03722 010965-09913 010965-09914 010972-07150
011050-06798 011074-09528 011093-07139 011093-07373
011093-07375 011117-06049 011136-05993 011149-04667
011149-04668 011149-04671 011197-04445 011208-04574
011360-08854 011369-08761 011373-06984 011393-05937
011656-03404 011656-05914 011656-05915 035042-06796
035296-05812

CO Reg. No.

000960-03827 008773-04622

DE Reg. No.

014782-03201

FL Reg. No.

000422-05384 001016-06733 001016-06734 001016-06735
003122-07554 003122-07555 003122-08829 003122-08850
003442-03698 006720-03353 007478-07990 007478-07992
009169-05226 009169-05288 009782-03659 009782-03660
009782-03661 011393-05937 011656-03404 014775-08766
014775-08768 035222-07170 035253-06040

GA Reg. No.

001016-06736 001016-06737 001016-06738 001812-03878
035219-06091

HI Reg. No.

000239-04184 037843-08561 037843-08581 037843-08586

ID Reg. No.

001016-06739 001016-06740 001016-10149

IL Reg. No.

030774-08144

CARBARYL

State Label Registrations (continued)

KS Reg. No.
001016-06741

LA Reg. No.
001016-06742 004841-06163 004841-06249

MD Reg. No.
014782-03016

MI Reg. No.
000595-04551 001016-06743 001016-06744 001016-06745

MS Reg. No.
001016-06746

NJ Reg. No.
005131-07219 005131-07224

NM Reg. No.
003051-09469

NY Reg. No.
038655-10429 038655-10439 038655-10440 038655-10468

OR Reg. No.
001016-06747 001871-08942 001871-08943

SC Reg. No.
001016-06748 001016-06749 001016-06750

TX Reg. No.
000430-08874 001016-06451 001016-06753 001016-10148
003286-08040 003286-08048 003286-08102 003286-08105
003442-03697 006853-06933 006853-07289 006853-07346
006853-07351 006926-03332 006926-03333 006926-03337
006926-03339 007467-03388 008127-05568 008127-05569
008127-05570 008127-05571 008127-05572 008612-03914
008612-03924 010290-04935 015887-04988 015887-04989
031143-04471 036007-03949 037803-08401 037854-08294

VA Reg. No.
014782-03017

WA Reg. No.
001016-06728 001016-06752 001016-10147

Index of Currently Acceptable Uses*

CARBARYL

Provisional Update Cover Sheet

The purpose of this "Provisional Update Cover Sheet" is to reflect any additions or modifications to use information and precautionary language subsequent to the development of the original "Index" entry. This update sheet also reflects additional uses covered by special local need (24-c) registrations and multiple active ingredient (MAI) registrations that were not originally covered in the attached single active ingredient (SAI) entry. The reader should note that the scope of this update sheet is limited to changes and additions reflected by the Registration Standard Guidance Document for carbaryl and is not intended to serve as a comprehensive update.

Additional Use Information

Site of Application	Type of Registration	Comments
birdsfoot trefoil	None	New tolerance
chestnut	SAI	New use
flax	None	New tolerance
lentils	None	New tolerance
maple	SAI	New use
millet	None	New tolerance
oysters	24-C	
pistachio nuts	SAI	New use
prickly pear cactus	24-C	

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* Covers single active ingredient products only

Index of Currently Acceptable Uses

CARBARYL

Additional or Modified Precautionary Language

Site	Page	Instruction	Precautionary Language
General Warnings & Limitations	1	Add	"Do not rotate to any crop other than those with registered carbaryl uses".
Cowpeas	53	Change	"No preharvest interval..." to "3 day preharvest interval".
Rice	126	Add	"Carbaryl is extremely toxic to aquatic and estuarine invertebrates. Discharge from rice fields may kill aquatic and estuarine invertebrates".
		Add	"Do not use on rice fields in which crayfish and catfish farming are included in the cultural practice".
		Delete	"May kill shrimp and crabs. Do not use in areas where these are important resources".
Dogs	160	Add	Do not use on pregnant dogs.
Forest trees	171	Change	"Avoid direct application to lakes, streams, and ponds" to "Carbaryl is extremely toxic to aquatic invertebrates. Do not apply directly to water or wetlands, except under the forest canopy".

II. REQUIREMENT FOR SUBMISSION OF GENERIC DATA

A. This portion of the guidance document is a Notice issued under the authority of FIFRA Section 3(c)(2)(B) and describes, in table format, the data required for maintaining the registrability of each product. Additionally, a bibliography (Appendix II-1) is included that identifies that data considered as part of the data base supporting this standard. EPA has determined that additional generic data described in this Notice must be submitted to EPA for evaluation in order to maintain in effect the registration(s) of your product(s) identified as an attachment to the cover letter accompanying this guidance document. As required by FIFRA Section 3(c)(2)(B), you are required to take appropriate steps to comply with this Notice.

EPA may suspend the registration of each of those products unless, within the specified time, you have informed EPA how you will satisfy the requirements of this Notice. Any such suspension will remain in effect until you have complied with the terms of this Notice.

B. What Generic Data [1] Must Be Submitted. You may ascertain which generic data you must submit by consulting Table A at the end of this chapter. That table shows all the generic data needed to evaluate the continued registrability of all products, and the dates by which the data must be submitted. The required data must be submitted and any necessary studies must be conducted in accordance with EPA-approved protocols, the Pesticide Registration Guidelines 2/, or data collected under the approved protocols of the Organization for Economic Cooperation and Development (OECD). If you wish not to develop data which are necessary to support the registration or reregistration of certain uses appearing in your labeling, you may delete those uses at the time you submit your revised labeling.

Also for certain kinds of testing (generally ecological effects), EPA requires the test substance to be a "typical formulation," and in those cases EPA needs data of that

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1/ Generic data pertain to the properties or effects of a particular ingredient, and thus are relevant to an evaluation of the risks of all products containing that ingredient (or all such products having a certain use pattern), regardless of any such product's unique composition or use. Product-specific data relate only to the properties or effects of a product with a particular composition (or a group of products with closely similar composition).

2/ The Pesticide Registration Guidelines were reproposed on November 24, 1982 in 47 Federal Register 53192.

type for each major formulation category (e.g., emulsifiable concentrates, wettable powders, granulars, etc.) These are classified as generic data and when needed are specified in Table A. EPA may possess data on certain "typical formulations" but not others. Note: The "typical formulation" data should not be confused with product-specific data (Table B) which are required on each formulation. Product-specific data are further explained in Chapter IV of this document.

C. Options Available for Complying With Requirements to Submit Data

Within 90 days of your receipt of this Notice you must submit to EPA a completed copy of the form entitled "FIFRA Section 3(c)(2)(B) Summary Sheet" [EPA Form 8580-1, Appendix II-2] for each of your products. On that form you must state which of the following methods you will use to comply with the requirements of this Notice:

1. (a) Notify EPA that you will submit the data, and

   (b) either submit the existing data you believe will satisfy the requirement, or state that you will generate the data by conducting testing. If the test procedures you will use deviate from (or are not specified in) the Registration Guidelines or protocols contained in the Reports of Expert Groups to the Chemicals Group, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must enclose the protocols you will use.

2. Notify EPA that you have entered into an agreement with one or more other registrants to jointly develop (or share in the cost of developing) the data. If you elect this option, you must notify EPA which registrant(s) are parties to the agreement.

3. File with EPA a completed "Certification of Attempt to Enter Into an Agreement With Other Registrants for Development of Data" (EPA Form 8580-6, Appendix II-3)*/

4. Request that EPA amend your registration by deleting the uses for which the data are needed. (This option is not available to applicants for new products.)

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*/ FIFRA Section 3(c)(2)(B) authorizes joint development of data by two or more registrants, and provides a mechanism by which parties can obtain an arbitrator's decision if they agree to jointly develop data but fail to agree on all the terms of the agreement. The statute does not compel any registrant to agree to develop data jointly.

(Footnote continued at bottom of next page)

5. Request voluntary cancellation of the registration(s) of your products for which the data are needed. (This option is not available to applicants for new products.)

D. Procedures for Requesting Changes in Testing Methodology and Extensions of Time

EPA recognizes that you may disagree with our conclusions regarding the appropriate ways to develop the required data or how quickly the data must be submitted. If the test procedures you plan to use deviate from (or are not specified in) the registration guidelines or protocols contained in the reports of the Expert Groups to the Chemical Groups, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must submit the protocol for Agency review prior to the initiation of the test.

If you think that you will need more time to generate the required data than is allowed by EPA's schedule, you may submit a request for an extension of time. The extension request must be submitted in writing to the Product Manager. The extension request should state the reasons why you conclude that an extension is appropriate. While EPA considers your request, you must strive to meet the deadline for submitting the required data.

(Footnote continued from previous page)

In EPA's opinion, joint data development by all registrants who are subject to the requirements to submit a pertinent item of data or a cost-sharing agreement among all such registrants is clearly in the public interest. Duplication of testing could increase costs, tie up testing facilities, and subject an unnecessarily large number of animals to testing.

As noted earlier, EPA has discretion not to suspend the registration of a product when a registrant fails to submit data required under FIFRA Section 3(c)(2)(B). EPA has concluded that it is appropriate to exercise its discretion not to suspend in ways which will discourage duplicative testing. Accordingly, if (1) a registrant has informed us of his intent to develop and submit data required by this Notice; and (2) a second registrant informs EPA that it has made a bona fide *offer* to the first registrant to share in the expenses of the testing [on terms to be agreed upon or determined by arbitration under FIFRA Section 3(c)(2)(B)(iii)]; and (3) the first registrant has declined to agree to enter into a cost-sharing agreement, EPA will not suspend the second firm's registration. While the first firm is not required to agree to jointly develop data, EPA is not required to force the second firm to engage in economically inefficient duplicative testing in order to maintain its registration.

III. REQUIREMENT FOR SUBMISSION OF PRODUCT-SPECIFIC DATA

Note: This Section applies only to manufacturing-use products, not end-use products.

A necessary first step in determining which statements must appear on your product's label is the completion and submission to EPA of product-specific data* listed on the form entitled "Product Specific Data Report" (EPA Form 8580-4, Appendix III-1) to fill "gaps" identified by EPA concerning your product. Under the authority of FIFRA Section 3(c)(2)(B), EPA has determined that you must submit these data to EPA in order to register or reregister your product(s). All of these data must be submitted not later than six months after you receive this guidance document.

"Product-Specific Data Requirements for Manufacturing-Use Products" appearing in Table B permit you to determine which product-specific data you must submit. This can be done by examining the entries in the column of those tables entitled "Must Data Be Submitted Under §3(c)(2)(B)."

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*/ Product specific data pertains to data that support the formulation which is marketed; it usually includes product chemistry data and acute toxicology data.

IV. SUBMISSION OF REVISED LABELING AND PACKAGING INFORMATION

Note: This section applies to end-use products only to the the extent described under Section II of this document. Otherwise, the following information pertains exclusively to manufacturing-use products.

The Agency requires applicants for registration or reregistration to ensure that each label (1) contains accurate, complete, and sufficient instructions and precautions, reflecting the results of data concerning the product and its ingredients, and (2) incorporates labeling format and terminology which are sufficiently standardized to avoid user confusion.

As part of your application, you will be required to submit draft labeling consistent with: applicable product-specific data; the precautionary statements and use directions; and the regulations concerning classification [40 CFR §162.11(c)], packaging [40 CFR §162.16], and labeling [40 CFR §162.10, Appendix IV-1 an IV-2], as indicated by the following paragraphs of this chapter of the guidance document.

If owners of currently registered products fail to submit revised labeling and packaging information complying with this Section and/or Section II, EPA may issue a notice of intent to cancel the registration under FIFRA §6(b)(1).

A. Label Contents

40 CFR §162.10 (Appendix IV-1) requires that certain specific labeling statements must appear at certain locations on the label. This is referred to as format labeling. Specific label items listed below are keyed to Tables D, E, and F (Appendix IV-2).

Item 1. PRODUCT NAME - The name, brand, or trademark is required to be located on the front panel, preferably centered in the upper part of the panel. The name of a product will not be accepted if it is false or misleading. See Appendix IV-1. [40 CFR §162.10(b)]

Item 2. COMPANY NAME AND ADDRESS - The name and address of the registrant or distributor is required on the label. The name and address should preferably be located at the bottom of the front panel or at the end of the label text. See Appendix IV-1. [40 CFR §162.10(c)]

Item 3. NET CONTENTS - A net content statement is required on all labels. The preferred location is the bottom of the front panel immediately above the company name and address, or at the end of the label text. The net contents must be stated in terms of weight, expressed as avoirdupois pounds and ounces, and stated in terms of the largest suitable unit, i.e., "1 pound 10 ounces" rather than "26 ounces." In addition to the required units specified, net contents may be expressed in metric units. See Appendix IV-1. [40 CFR §162.10(d)]

Item 4. EPA REGISTRATION NUMBER - The registration number assigned to the pesticide product must appear on the label, preceded by the phrase "EPA Registration No.," or "EPA Reg. No." The registration number must be set in type of a size and style similar to other print on that part of the label on which it appears and must run parallel to it. The registration number and the required identifying phrase must not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency. See Appendix IV-1. [40 CFR §162.10(e)]

Item 5. EPA ESTABLISHMENT NUMBER - The EPA establishment number, preceded by the phrase "EPA Est." is the final establishment at which the product was produced, and may appear in any suitable location on the label or immediate container. It must also appear on the wrapper or outside container of the package if the EPA establishment registration number on the immediate container cannot be clearly read through such wrapper or container. See Appendix IV-1. [40 CFR §162.10(f)]

Item 6. INGREDIENT STATEMENT - An ingredient statement is required on the front panel and must contain the name and percentage by weight of each active ingredient and the total percentage by weight of all inert ingredients. The preferred location is immediately below the product name. The ingredient statement must run parallel with, and be clearly distinguished from, other text on the panel. It must not be placed in the body of other text. See Appendix IV-1. [40 CFR 162.10(g)]

Item 6A. POUNDS PER GALLON STATEMENT - For liquid agricultural formulations, the pounds per gallon of active ingredient must be indicated on the label.

Item 7. FRONT LABEL PRECAUTIONARY STATEMENTS - All labels are required to have precautionary statements grouped together on the front panel, preferably within a block outline. The table below shows the minimum type size requirements on various size labels, as set forth in the Regulations.

Size of Label on Front Panel in Square Inches	Signal Word as Required Minimum Type Size All Capitals	"Keep Out of Reach of Children" as Required
5 and under	6 point	6 point
above 5 to 10	10 point	6 point
above 10 to 15	12 point	8 point
above 15 to 30	14 point	10 point
over 30	18 point	12 point

Item 7A. CHILD HAZARD WARNING STATEMENT - All labels are required to have the statement "Keep Out of Reach of Children" located on the front panel above the signal word except where contact with children during distribution or use is unlikely. See Appendix IV-1. [40 CFR §162.10(h)(1)(ii)]

Item 7B. SIGNAL WORD - The signal word (Caution, Warning, or Danger) is required on the front panel immediately below the child hazard warning statement. See Appendix IV-1. [40 CFR §162.10 (h)(1)(i)]

Item 7C. SKULL & CROSSBONES AND WORD "POISON" - On products assigned a toxicity Category I on the basis of oral, inhalation, or dermal toxicity, the word "Poison" shall appear on the label in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word poison. See Appendix IV-1. [40 CFR §162.10(h)(1)(i)]

Item 7D. STATEMENT OF PRACTICAL TREATMENT - A statement of practical treatment (first aid or other) shall appear on the label of pesticide products in toxicity Categories I, II, and III. See Appendix IV-1. [40 CFR §162.10(h)(1)(iii)]

Item 7E. REFERRAL STATEMENT - The statement "See Side (or Back) Panel for Additional Precautionary Statements" is required on the front panel for all products, unless all required precautionary statements appear on the front panel. See Appendix IV-1. [40 CFR §162.10(h)(1)(iii)]

Item 8. SIDE/BACK PANEL PRECAUTIONARY LABELING - The precautionary statements as listed below must appear together on the label under the heading "PRECAUTIONARY STATEMENTS." The preferred location is at the top of the side or back panel preceding the directions for use, and it is preferred that these statements be surrounded by a block outline. Each of the three hazard warning statements must be headed by the appropriate hazard title. See Appendix IV-1. [40 CFR §162.10 (h)(2)]

Item 8A. HAZARD TO HUMANS AND DOMESTIC ANIMALS - Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions taken to avoid accident, injury or damage. See Appendix IV-1. [40 CFR §162.10 (h)(2)(i)]

Item 8B. ENVIRONMENTAL HAZARD - Where a hazard exists to non-target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury, or damage. See Appendix IV-1. [40 CFR §162.10(h)(2)(ii)]

Item 8C. PHYSICAL OR CHEMICAL HAZARD

1. Flammability statement. Precautionary statements relating to flammability of a product are required to appear on the label if it meets the criteria in Appendix IV-3. The requirement is based on the results of the flashpoint determinations and flame extension tests required to be submitted for all products. These statements are to be located in the side/back panel precautionary statements section, preceded by the heading "Physical/Chemical Hazards." Note that no signal word is used in conjunction with the flammability statements.

2. Criteria for declaration of non-flammability. The following criteria will be used to determine if a product is non-flammable:

   a. A "non-flammable gas" is a gas (or mixture of gases) that will not ignite when a lighted match is placed against the open cylinder valve.

   b. A "non-flammable liquid" is one having a flashpoint greater than 350°F (177°C) as determined by the method specified in 40 CFR §163.61-8(c)(13)(ii) of Subpart D.

   c. A "non-flammable aerosol" is one which meets the following criteria:

      i. The flame extension is zero inches, using the method specified in 40 CFR §163.61-8(c)(13)(ii);

      ii. There is no flash back; and

      iii. The flashpoint of the non-volatile liquid component is greater than 350°F (177°C), determined by the method specified in 40 CFR §163.61-8(c)(13)(i).

3. Declaration of non-flammability. Products which meet the criteria for non-flammability specified above may bear the notation "non-flammable" or "nonflammable (gas, liquid, etc.)" on the label.

   It may appear as a substatement to the ingredients statement, or on a back or side panel, but shall not be highlighted or emphasized (as with an inordinately large type size) in any way that may detract from precaution.

4. Other physical/chemical hazard statements. When chemistry data submitted in accordance with 40 CFR §163.61-10(c) demonstrate hazards of a physical or chemical nature other than flammability, appropriate statements of hazard will be prescribed. Such statements may address hazards of explosivity, oxidizing or reducing capability, or mixing with other substances to produce toxic fumes.

Item 9. MISUSE STATEMENT - The following statement is required on your label: "It is a violation of Federal law to use this product in a manner inconsistent with its labeling." See Appendix IV-1. [40 CFR §162.10(1)(2)(ii)]

Item 10A. STORAGE AND DISPOSAL BLOCK - All labels are required to bear storage and disposal statements. These statements are developed for specific containers, sizes, and chemical content. Make certain that the statement you use pertains specifically to your product. These instructions must be grouped and appear under the heading "Storage and Disposal" in the directions for use. This heading must be set in the same type sizes as required for the child hazard warning. Refer to Appendix IV-5 for the latest specific storage and disposal product label statements.

Item 10B. DIRECTIONS FOR USE - Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment. See Appendix IV-1. [40 CFR §162.10]

B. Collateral Information

Bulletins, leaflets, circulars, brochures, data sheets, flyers, and other graphic printed matter which is referred to on the label or which is to accompany the product are termed collateral labeling. Such labeling may not bear claims or representations that differ in substance from those accepted in connection with registration of the product. It should be made part of the response to this notice and submitted for review.

V. INSTRUCTIONS FOR SUBMISSION

All applications prepared in response to this Notice should be addressed as follows:

Product Manager: Jay S. Ellenberger (PM 12)
Phone No. (703) 557-2386
Registration Division (TS-767)
Office of Pesticide Programs
Environmental Protection Agency
Washington, D.C. 20460

For each product for which continued registration is desired:

1. Within 90 days from receipt of this document, you must submit the "FIFRA Section 3(c)(2)(B) Summary Sheet" EPA Form 8580-1. Refer to Appendix II-2 with appropriate attachments.

2. Within 6 months from receipt of this document registrants must submit:

    a. Confidential Statement of Formula, EPA Form 8570-4.

    b. Product Specific Data Report, EPA Form 8580-4 (Appendix III-1).

    c. Two copies of any required product-specific data.

    d. Two copies of draft labeling, including the label and associated brochures. If current labeling conforms to the requirements of this guidance document and the results of the short-term data, the registrant may submit such labeling. (End-use product labeling needs to comply specifically with the instruction in Section II of this guidance document.) The labeling should be either typewritten text on 8-1/2 x 11 inch paper or a mockup of the labeling suitable for stortage in 8-1/2 x 11 inch files. The draft label must indicate the intended colors of the final label, clear indication of the front panel label, and the intended type sizes of the text.

3. Within the time set forth in Table A, all generic data must be submitted by the affected registrant(s).

Note: If for any reason any required test is delayed or aborted so that meeting the agreed submission time will be delayed, notify the Product Manager listed above.

After the Supreme Court has ruled on the Monsanto Decision, you will be informed as to when you must submit your Application for Amended Pesticide Registration (EPA Form 8570-1) and the associated data support information.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
Sugarbeets	TEP	Partial	00089868	Yes[4]
Sweet potatoes	TEP	Yes	00107017	No
Turnips	TEP	Yes	00089868	No
- Leaves of Root and Tuber Vegetable Group				
Beets (garden)	TEP	Yes	00089868	No
Salsify	TEP	Yes	00089868	No
Sugarbeets	TEP	Yes	00089868	No
Turnips	TEP	Yes	00089868	No
- Leafy Vegetables Group				
Celery	TEP	Yes	GS0080018	No
Dandelion	TEP	Yes	00089868	No
Endive	TEP	Yes	00089868	No
Lettuce	TEP	Yes	00090162;00089868	No[26]
Parsley	TEP	Yes	00089868	No
Spinach	TEP	Yes	00089868	No

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Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
Squash, winter	TEP	Yes	00090325	No
- Citrus Fruits Group				
Citrus fruits	TEP	Partial	GS0080029;GS0080030 00090204	Yes[9] [26]
- Pome Fruits Group				
Apples	TEP	Partial	GS0080031;GS0080032 GS0080045;GS0080003	Yes[10] [26]
Pears	TEP	Yes	00089455;00080419	No[26]
- Stone Fruits Group				
Apricots	TEP	Partial	00090160	Yes[11]
Cherries	TEP	Yes	GS0080028;GS0080034	No[26]
Nectarines	TEP	Yes	00090160	No
Peaches	TEP	Yes	GS0080033	No
Plums (fresh prunes)	TEP	Partial	GS0080028;GS0080034	Yes[12] [26]
- Small Fruits and Berries Group				
Blackberries	TEP	Yes	00089868	No
Blueberries	TEP	Partial	00090161;GS0080009	Yes[13] [26]

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

ata Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
158.125 Residue Chemistry				
Swiss chard	TEP	Yes	00089868	No
- Brassica (Cole) Leafy Vegetable Group				
Broccoli	TEP	Yes	00090325	No
Brussels sprouts	TEP	Yes	00090325	No
Cabbage	TEP	Yes	00090325	No
Cauliflower	TEP	Yes	00090325	No
Chinese cabbage	TEP	Yes	00089868	No
Collards	TEP	Yes	00089868	No
Kale	TEP	Yes	00089868	No
Kohlrabi	TEP	Yes	00090325	No
Mustard greens	TEP	Yes	00089868	No
- Legume Vegetables (Succulent or Dried) Group				
Beans	TEP	Partial	GS0080002;GS0080003	Yes[5] [26]
Cowpeas	TEP	Yes	00089837	No[6]
Lentils	TEP	Yes	GS0080017;GS0080044 GS0080004;00089837	No[26]

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
.125 Residue Chemistry				
Peas	TEP	Yes	00090113;GS0080017	No[26]
Soybeans	TEP	Partial	00089837	Yes[7]
- Foilage of Legume Vegetable Group				
Beans, forage and hay	TEP	Yes	GS0080002;GS0080003 GS0080004;00089837	No[26]
Cowpeas, forage and hay	TEP	Yes	00089837	No
Pea vines	TEP	Yes	00089837;GS0080017	No[26]
Soybeans, forage and hay	TEP	Yes	00089837	No
- Fruiting Vegetables				
Eggplant	TEP	Yes	00089600	No
Peppers	TEP	Yes	00089600	No
Tomatoes	TEP	Partial	00089600	Yes[8]
- Cucurbit Vegetables Group				
Cucumbers	TEP	Yes	00089376	No
Melons	TEP	Yes	00090325	No
Pumpkins	TEP	Yes	00090325	No
Squash, summer	TEP	Yes	00089376	No

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
Boysenberries	TEP	Yes	00089868	No
Cranberries	TEP	Partial	00090161;GS0080009	Yes[14 26]
Dewberries	TEP	Yes	00089868	No
Grapes	TEP	Partial	GS0080019;GS0080020 00089418	Yes[15 26]
Loganberries	TEP	Yes	00089868	No
Raspberries	TEP	Yes	00089868	No
Strawberries	TEP	Yes	GS0080028;GS0080043	No[26]
- Tree Nuts Group				
Almonds	TEP	Yes	GS0080011;GS0080012	No[26]
Almond hulls	TEP	Yes	GS0080011;GS0080012	No[26]
Chestnuts	TEP	Yes	GS0080011;GS0080012	No[26]
Filberts	TEP	Yes	GS0080008	No
Pecans	TEP	Yes	GS0080015	No
Pistachio nuts	TEP	Yes	GS0080039	No
Walnuts	TEP	Yes	GS0080011;GS0080012	No[26]

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
- Ceral Grain Group				
Barley	TEP	Yes	GS0080022*;GS0080023* GS0080024*;GS0080088*	No[16] [26]
Corn	TEP	Partial	GS0080006;GS0080007 GS0080005;00089420	Yes[17] [26]
Millet, proso, grain	TEP	Yes	GS0080036	No
Oats, grain	TEP	Yes	GS0080040;GS0080047 GS0080048;GS0080085 GS0080024*	No[16] [26]
Rice	TEP	Partial	GS0080021;00089837	Yes[18] [26]
Rye, grain	TEP	Yes	GS0080040;GS0080047 GS0080048;GS0080086* GS0080087*;GS0080022 GS0080024*;00015669	No[16] [26]
Sorghum, grain	TEP	Partial	GS0080024*	Yes[19]
Wheat, grain	TEP	Yes	GS0080040;GS0080047 GS0080048;GS0080022* GS0080024*;GS0080086* GS0080087*;00015669	No[26]

*Data submitted by Union Carbide Agricultural Products Co., Inc. These data may be compensable.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

ata Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
- Forage, Fodder, and Straw of Cereal Grains Group				
Barley, green fodder straw	TEP	Yes	GS0080022*;GS0080023* GS0080024*;GS0080088*	No[26]
Corn, forage fodder	TEP	Yes	GS0080005;GS0080006 GS0080007;00089420	No[26]
Millet, proso, straw	TEP	Yes	GS0080036	No
Oats, fodder, green straw	TEP	Yes	GS0080040;GS0080047 GS0080048;GS0080085 GS0080024*;GS0080021 00089837	No[26]
Rice, bran straw	TEP	Yes	GS0080021;00089837	No[26]
Rye, fodder, green straw	TEP	Yes	GS0080040;GS0080047 GS0080048;GS0080085 GS0080022*;GS0080024* GS0080086*;GS0080087* 00015669	No[26]
Wheat, fodder, green straw	TEP	Yes	GS0080022*;GS0080024* GS0080040;GS0080047 GS0080048;GS0080086* GS0080087*;00015669	No[26]

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TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
- Grass Forage, Fodder, and Hay Group				
Grass Grass, hay	TEP	Partial	GS0080010;GS0080025 GS0080026;GS0080024 GS0080021;GS0080041 GS0080085	Yes[20] [26]
- Non-Grass Animal Feeds (Forage, Fodder, Straw, and Hay) Group				
Alfalfa Alfalfa, hay	TEP	Partial	GS0080022*;GS0080023* GS0080024*;GS0080025 GS0080026*;GS0080041 00089837	Yes[21] [26]
Clover Clover, hay	TEP	Yes	GS0080025;GS0080026* GS0080041;00089837	No[26]
Birdsfoot trefoil forage hay	TEP	Yes	GS0080022*;GS0080023* GS0080024*;GS0080025 GS0080026*;GS0080041 GS0080046;00089837	No[26]
- Miscellaneous Crops				
Asparagus	TEP	Yes	GS0080013;GS0080014	No[26]
Bananas	TEP	Yes	00089602	No
Cotton, forage Cottonseed	TEP	Partial	GS0080005;00089837 GS0080084	Yes[22] [26]

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TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
Flax, seed straw	TEP	Yes	GS0080037	No
Maple sap	TEP	Yes	GS0080090*	No
Okra	TEP	Yes	00090229	No
Olives	TEP	Partial	00090281	Yes[23]
Oysters	TEP	Yes		No
Peanuts Peanuts, hay	TEP	Partial	00089837	Yes[24]
Sunflower seeds	TEP	Partial	GS0080016	Yes[25]
Tobacco	TEP	Yes		No
171-4 - Magnitude of the Residues in Food-producing animals				
Meat/Milk/Poultry/Eggs	TGAI or plant metabolites	Yes	GS0080059;GS0080078 GS0080054;GS0080055 GS0080056;GS0080049 GS0080051;GS0080063 GS0080061;GS0080060 GS0080080;00118378 00118373;00080420 00118342*;00061103 00118375*;00118376*	No[26]

*Data submitted by Union Carbide Agricultural Products Co., Inc. These data may be compensable.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
Meat/Milk/Poultry/Eggs	TGAI or plant metabolites	Yes	00118370;00118372 00118366;00080417 00118368;00118367 00015669;00118346 00118374;00080680* 00080419	No[26]
Food Handling Establishments	TEP	No	-	Yes[27]

*Data submitted by Union Carbide Agricultual Products Co., Inc. These data may be compensable.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

§158.125 Residue Chemistry
(continued)

1. Composition: TGAI = Technical grade of the active ingredient; PAIRA = Pure active ingredient, radiolabelled; TEP = Typical end-use product; EP = End-use product.
2. Data must be submitted no later than APR 1986.
3. Residue data on potato granules, chips and dried products must be submitted.
4. A tolerance for sugarbeet roots must be proposed. Also, data on residues in dried pulp, molasses and refined sugar must be submitted.
5. Residue data on bean cannery wastes must be submitted.
6. The available data shows that residues on cowpeas at a 0-day PHI can be as high as 26 ppm. The established tolerance is 5ppm. A 3-day PHI for cowpeas must be established.
7. Residue data on soybean meal, hulls, soapstock, crude oil and refined oil must be submitted. Also, additional data data are needed to support a 2.5 lb. a.i./A rate for a dust formulation.
8. Residue data on tomato pomace (wet and dry), puree, catsup, and juice must be submitted.
9. Residue data on citrus molasses, oils, and peels must be submitted. Also, residue data must be submitted to support the aerial application use.
10. Residue data on dried apple pomace must be submitted.
11. Residue data on dried apricots must be submitted.
12. Additional residue data on prunes must be submitted.
13. Additional residue data on blueberries are needed to support the 4 lb. a.i./A rate for dust formulations.
14. Additional residue data on cranberries are needed to support the 4 lb. a.i./A rate for dust formulations.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

§158.125 Residue Chemistry
(continued)

15. Residue data on grape pomace, grape juice, raisins, and raisin wastes must be submitted.

16. Residue data for barley, oats, and rye are needed to obtain a finite group or individual tolerances.

17. Residue data on field corn milled products must be submitted. Residue data on sweet corn cannery wastes must be submitted.

18. Residue data on rice bran with germ must be submitted.

19. Residue data on sorghum flour, milled products, and sweet syrup must be submitted.

20. The limited available data suggest that the tolerance may be exceeded at the recommended dosage rates. Additional data must be submitted. Additional data must be submitted to support the rangeland and pasture uses.

21. Residue data on alfalfa meal must be submitted. The available data show that at a 0-day PHI the tolerance for alfalfa could be exceeded. Therefore, either additional residue data must be submitted or a 3-day PHI must be established.

22. Additional residue data must be submitted or a 7-day PHI must be established.

23. Residue data on olive pomace and pressed cake must be submitted.

24. Residue data on peanut soapstock must be submitted.

25. Residue data on sunflower meal, hulls, crude oil, and refined oil must be submitted.

26. All references must be cited.

27. A petition for a food additive regulation must be submitted or the use in food areas of food handling establishments, restaurants, or other places where food is prepared or processed must be deleted from labeling. The following restriction would then be placed on all carbaryl labels with directions for use indoors: "Do not use this product in food areas of food handling establishments, restaurants, or other places where food is prepared or processed."

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.130 Environmental Fate					
DEGRADATION STUDIES-LAB:					
161-1 - Hydrolysis	TGAI or PAIRA	A,B,C,D,E,F G,H	Partial	GS0080751;05003472 GS0080750;00115465	Yes[4]
Photodegradation					
161-2 - In water	TGAI or PAIRA	A,B,C,D,G	Partial	00115465	Yes[5]
161-3 - On soil	TGAI or PAIRA	A,G	No	-	Yes
161-4 - In Air	TGAI or PAIRA	A	No	-	Yes
METABOLISM STUDIES-LAB:					
162-1 - Aerobic Soil	TGAI or PAIRA	A,B,E,F,G,H	No	-	Yes
162-2 - Anaerobic Soil	TGAI or PAIRA	A	No	-	Yes
162-3 - Anaerobic Aquatic	TGAI or PAIRA	C,D,G	No	-	Yes
162-4 - Aerobic Aquatic	TGAI or PAIRA	C,D	Partial	05018064	Yes[6]
MOBILITY STUDIES:					
163-1 - Leaching and Adsorption/Desorption	TGAI or PAIRA	A,B,C,D,E,F, G,H	Partial	00037300;05019948	Yes[7]
163-2 - Volatility (Lab)	TEP	A,E,F	No	-	No[8]
163-3 - Volatility (Field)	TEP	A,E,F	No	-	No[9]

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.130 Environmental Fate (continued)					
DISSIPATION STUDIES-FIELD:					
164-1 - Soil	TEP	A,B,H	No	-	Yes
164-2 - Aquatic - Soil (Sediment)	TEP	C,D	No	-	Yes
- Water	TEP	C,D	No	-	Yes
164-3 - Forestry	TEP	G	No	-	Yes
164-4 - Combination and Tank Mixes	-	-	N/A	-	No[10]
164-5 - Soil, Long-term	TEP	A,C	No	-	Reserved[11]
ACCUMULATION STUDIES:					
165-1 - Rotational Crops (Confined)	PAIRA	A,C	No	-	Yes
165-2 - Rotational Crops (Field)	TEP	A,C	No	-	Yes
165-3 - Irrigated Crops	TEP	C,D	No	-	Yes
165-4 - In Fish	TGAI or PAIRA	A,B,C,D, G	No	-	Yes[12]
165-5 - In Aquatic Non-Target Organisms	TEP	D,G	No	-	Reserved[13]

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

ata Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
158.130 Environmental Fate (continued)					
165 - Accumulation Studies for the Aquatic Uses					
- Residue Data on Crops Receiving Irrigation Water from Treated Rice Fields	TEP	C	No	-	Yes[14]
- Residue Data on Crops Used in Rotation With Rice	TEP	C	No	-	Yes[14]
- Residue Data on Crayfish and Catfish That are Farmed in Rice Fields	TEP	C	No	-	Yes[14]
- Residue Data on Crops Receiving Irrigation Water from Treated Cranberry Bog (Marsh) If Included in Cultural Practice	TEP	C	No	-	Yes[14]

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

§158.130 Environmental Fate
(continued)

1. Composition: TGAI = Technical grade of the active ingredient; PAIRA = Pure active ingredient, radiolabelled; TEP = Typical end-use product.

2. The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

3. Data must be submitted no later than APR 1986.

4. These studies provide information on the rate of hydrolysis of carbaryl. However, these studies do not provide sufficient data on the identification and quantification of the hydrolysis products. 1-Naphthol was the only hydrolysis product identified but it was not quantified.

5. This study provides information on the rate of photolysis of carbaryl in distilled water under natural sunlight. A material balance must be submitted or this study must be repeated.

6. This study provides information on the rate of aerobic aquatic metabolism in creek water. Formation and decline of degradation products must be submitted or this study must be repeated.

7. These studies provide information on the mobility of carbaryl under rapid leaching conditions in loam, sandy loam, and silty clay loam soil columns and mobility of carbaryl in a silty clay loam by soil TLC. Information was also provided on the adsorption coefficient (Kd) for carbaryl on loam, sandy loam, and silty clay loam. However, to totally satisfy this data requirement, the following studies are required: (1) A mobility study to assess the leaching potential of carbaryl and its degradates after the pesticide has been aged in a sandy soil or a soil representative of the use area (this will satisfy the data requirements for the terrestrial, food crop and terrestrial, non-food use patterns), (2) Batch equilibrium (adsorption/desorption) studies conducted on a minimum of four soils, such as sand (agricultural), sandy loam, silty loam, clay or clay-loam, each having a pH within the range of 4-8 (this will satisfy the data requirements for the greenhouse, food crop, greenhouse, non-food, and domestic outdoor use patterns),and (3) A batch equilibrium (adsorption/desorption) study on one aquatic sediment obtained from or representative of the use area (this will satisfy the data requirements for the aquatic, food and aquatic, non-food use patterns).

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

§158.130 Environmental Fate
(continued)

8. Not required because carbaryl is not expected to significantly volatilize.

9. Not required because carbaryl does not require a reentry interval.

10. This Guidance Document deals only with single active ingredients.

11. The requirements for a soil and water long-term study(s) are reserved pending the evaluation of the field dissipation studies (Terrestrial and Aquatic).

12. Fish accumulation data will not normally be required in situations where registrant(s) can offer acceptable evidence demonstrating that the active ingredient and/or its principal degradation products: will not persist in water (i.e., a half-life of approximately 4 days or less) and has properities suggesting: (a) a relatively low potential for accumulation in fish (an octanol/water partition coefficient less than 1000) or (b) a lack of accumulation in the organs and tissues of mammals or fish.

13. The requirement for an aquatic non-target organism study is reserved pending the evaluation of the fish accumulation study.

14. These data must be submitted and evaluated in order to delete the label restriction "Do not use on rice fields in which crayfish and catfish farming are included in the cultural practice."

TABLE A
GENERIC DATA REQUIREMENTS FOR CHEMICAL: Carbaryl

Guideline Citation and Name of Test	Test[1] Substance	Guidelines Status	Are Data Required[2] Yes	No	Footnote Number
§158.120 Product Chemistry					
Product Identity:					
61-1 - Identity of Ingredients	TGAI	R	☒	☐	
61-2 - Statement of Composition	TGAI	R	☒	☐	
61-3 - Discussion of Formation of Ingredients	TGAI	R	☒	☐	
Analysis and Certification of Product Ingredients					
62-1 - Preliminary Analysis	TGAI	CR	☒	☐	
62-2 - Certification of Limits	TGAI	R	☒	☐	
62-3 - Analytical Methods for Enforcement of Limits	TGAI	R	☒	☐	
Physical and Chemical Characteristics					
63-2 - Color	TGAI	R	☒	☐	
63-3 - Physical State	TGAI	R	☒	☐	
63-4 - Odor	TGAI	R	☒	☐	
63-5 - Melting Point	TGAI	R	☒	☐	
63- 6 - Boiling Point	TGAI	R	☐	☒	

TABLE A
GENERIC DATA REQUIREMENTS FOR CHEMICAL: Carbaryl

Guideline Citation and Name of Test	Test[1] Substance	Guidelines Status	Are Data[2] Required Yes	Are Data[2] Required No	Footnote Number
§158.120 Product Chemistry					
Physical and Chemical Characteristics (Continued)					
63- 7 - Density, Bulk Density, or Specific Gravity	TGAI	R	☒	☐	______
63- 8 - Solubility	TGAI or PAI	R	☒	☐	______
63- 9 - Vapor Pressure	PAI	R	☒	☐	______
63-10 - Dissociation constant	PAI	R	☒	☐	______
63-11 - Octanol/water partition coefficient	PAI	R	☒	☐	______
63-12 - pH	TGAI	R	☒	☐	______
63-13 - Stability	TGAI	R	☒	☐	______
Other Requirements:					
64- 1 - Submittal of samples	Choice	CR	☐	☒	______

1. Test Substance: TGAI = Technical grade of the active ingredient; PAI = Pure active ingredient; C = Either substance.

2. Data must be submitted by 1983.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
171-4 - Nature of Residue (Metabolism)				
- Plants	PAIRA	Yes	00116083*;00118342 00053897*;00049135 GS0080083;GS0080082 GS0080069*;GS0080074 GS0080077	No[26]
- Livestock	PAIRA and plant metabolites	Yes	00118371;00080686* 00118368;00080683* 00080682*;00080689* 00091952;00118375 00080690*;00118377* 00080417;00118346 00080681;00080680 00118376*;00118347 GS0080072;GS0080075 GS0080073;GS0080076 GS0080081;GS0080074 GS0080071;GS0080070 00015669	No[26]
171-4 - Residue Analytical Method				
- Plant residues	TGAI and metabolites	Yes	05018884;GS0080078 GS0080050;GS0080054 GS0080091;GS0080092 GS0080093;05008728 05004154;05014156 05010424;05001852 05014889;05004934 05016141;05019959	No[26]

*Data submitted by Union Carbide Agricultural Products Co., Inc. These data may be compensable.

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GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
171-4 - Residue Analytical Method				
- Plant residues	TGAI and metabolites	Yes	GS0080052;GS0080053 GS0080079;GS0080066 GS0080067;GS0080064 GS0080062;GS0080055 GS0080056;GS0080057 GS0080058;GS0080049 GS0080079;GS0080063 00118373;00118346 00118370;00118372 00080680;00118366 00080417;00118368 00118377;00118367 00118342	No[26]
- Animal residues	TGAI and metabolites	Yes	GS0080052;GS0080053 GS0080054;GS0080078 GS0080055;GS0080056 GS0080063;GS0080062 00118375;00118376 00080680;00118346 00118373;00118370 00118372;00118366 00080417;00118368 00118367;05018884 00061103;GS0080035* GS0080050;GS0080057 GS0080058;GS0080094	No[26]

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TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirements	Composition[1]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[2]
§158.125 Residue Chemistry				
- Animal residues	TGAI and metabolites	Yes	GS0080038;05004154 05008728;05016141 05014156;05010424 05019959;05016141 05001852;05014889	No[26]
171-4 - Storage Stability Data	PAI	Yes	GS0080036*;GS0080061 GS0080068	No
171-4 - Magnitude of the Residue-Residue Studies for Each Food Use				
- Root and Tuber Vegetable Group				
Beets	TEP	Yes	00089868	No
Carrots	TEP	Yes	00090325	No
Horseradish	TEP	Yes	00089868	No
Parsnips	TEP	Yes	00089868	No
Potatoes	TEP	Partial	00107017;GS0080001* GS0080089;GS0080042	Yes[3] [26]
Radishes	TEP	Yes	00089868	No
Rutabagas	TEP	Yes	00089868	No
Salsify	TEP	Yes	00089868	No

*Data submitted by Union Carbide Agricultural Products Co., Inc. These data may be compensable.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirement	Composition[1]	Use Patterns[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.135 Toxicology					
ACUTE TESTING:					
81-1 - Oral LD_{50} - Rat	TGAI	A,B,C,D,E, F,G,H,I	Yes	GS0080999*	No
81-2 - Dermal LD_{50}	TGAI	A,B,C,D,E, F,G,H,I	Yes	GS0080999*	No
81-3 - Inhalation LC_{50} - Rat	TGAI	A,B,C,D,E, F,G,H,I	No	-	Yes[10]
81-7 - Acute Delayed Neurotoxicity - Hen	TGAI	A,B,C,D,E, F,G,H,I	Yes	00061102	No[5]
SUBCHRONIC TESTING:					
82-1 - 90-Day Feeding - Rodent, Non-rodent	TGAI	A,C,E	Yes	00061102	No
82-2 - 21-Day Dermal	TGAI	A,B,C,D,E,F, G,H,I	No	-	No
82-3 - 90-Day Dermal	TGAI	A,B,C,D,E,F G,H,I	No	-	No
82-4 - 90-Day Inhalation - Rat	TGAI	A,B,C,D,E,F G,H,I	No	-	No
82-5 - 90-Day Neurotoxicity-Hen/Mammal	TGAI	A,B,C,D,E F,G,H,I	No	-	No[4]

*Data submitted by Union Carbide Agricultural Products Co., Inc. These data may be compensable.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)?	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.135 Toxicology (continued)					
CHRONIC TESTING:					
83-1 - Chronic Toxicity - 2 species: Rodent and Non-rodent	TGAI	A,C,E	Partial	00061102	Yes[3,6]
83-2 - Oncogenicity Study - 2 species: Rat and Mouse preferred	TGAI	A,C,E	Yes	GS00801006;00061102 05004401;00080671 00085448;00080669 GS00801080	No[7]
83-3 - Teratogenicity - 2 species	TGAI	A,C,E	Partial	GS00801010;GS00801011 GS00801012;GS00801015 00080416;05020870 00080874	Yes[4,7,8]
83-4 - Reproduction, 2-generation	TGAI	A,C,E	Yes	00080874	No
MUTAGENICITY TESTING					
84-2 - Gene Mutation	TGAI	A,C,E	Yes	GS00801018;GS00801024 GS00801026 GS00801034 GS00801029;GS00801031 GS00801051;GS00801033 GS00801043;GS00801046 GS00801063;00115485 05011624;00066864 05019339;00043655 05022257;05018390	No[7]

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirement	Composition[2]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)?	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.135 Toxicology (continued)					
84-2 - Chromosomal Aberration	TGAI	A,C,E	Yes	GS00801020;GS00801021 GS00801022;GS00801023 GS00801028;GS00801034 GS00801063;GS00801036 GS00801047;GS00801052 GS00801053;GS00801057 00080874;05016869	No[7]
84-2 - Other Mechanisms of Mutagenicity	TGAI	A,C,E	Yes	GS00801019;GS00801044 GS00801049;GS00801063	No[7]
SPECIAL TESTING					
85-1 - General Metabolism	PAI or PAIRA	A,C,E	Partial	GS00801050;GS00801060 GS00801061;05008717 GG00801079;05004999 00015699	Yes[7,9]
85-2 - Domestic Animal Safety	Choice	A,C,E	Partial	00042411;00005130	Yes[4,7,9]

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

§158.135 Toxicology
(continued)

1. Composition: PAI = Pure active ingredient; PAIRA = Pure active ingredient, radiolabelled; Choice = Choice of several test substances determined on a case-by-case basis.
2. The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aqautic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.
3. The one year dog feeding study must be submitted no later than APR 1986.
4. The dog teratology study and the metabolism study must be submitted no later than APR 1985.
5. Carbaryl is not an organophosphate and it is not structurally related to a substance that causes delayed neurotoxicity.
6. A one-year dog feeding study must be submitted.
7. All references must be cited.
8. A repeat teratology study in the beagle dog is required.
9. A study comparing the metabolism of the dog versus the rat or monkey is required.
10. Data must be submitted by OCT [illegible].

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirement	Composition^1	Use Pattern^2	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.145 Wildlife and Aquatic Organisms					
AVIAN AND MAMMALIAN TESTING					
71-1 - Avian Oral LD_{50}	TGAI	A,B,C,D,G,H	Yes	GS0080152	No
71-2 - Avian Dietary LC_{50}	TGAI	A,B,C,D,G,H	Yes	00028757	No
71-3 - Wild Mammal Toxicity	TGAI	A,B,C,D,G	No	-	Reserved^4
71-4 - Avian Reproduction	TGAI	A,B,C,D,G	No	-	Yes^3
71-5 - Simulated and Actual Field Testing - Mammals and Birds	TEP	A,B,C,D,G	Partial	05014922;GS0080150 GS0080151;GS0080153	Reserved^5
AQUATIC ORGANISM TESTING					
72-1 - Freshwater Fish LC_{50}					
a. Warmwater fish	TGAI	A,B,C,D,G,H	Yes	00043115;GS0080156;	No^6
b. Coldwater fish	TGAI	A,B,C,D,G,H	Yes	GS0080156	No
c. Warmwater fish	TEP	C,D,G	Partial	00042381;00059202 GS0080156	Yes$^{8\ 9}$
d. Coldwater fish	TEP	C,D,G	Partial	GS0080156;00042381 00059202	Yes$^{8\ 9}$
72-2 - Acute LC_{50} Freshwater Invertebrates	TGAI	A,B,C,D,G,H	Yes	GS0080156	No
"	TEP	C,D,G	No	-	Yes$^{8\ 9}$

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.145 Wildlife and Aquatic Organisms (continued)					
72-3 - Acute LC_{50} Estuarine and Marine Organisms	TGAI	A,B,C,D,G	No	-	Yes[9]
72-4 - Fish Early Life Stage and Aquatic Invertebrate Life-Cycle	TGAI	A,B,C,D,G	Partial	GS0080155	Yes[7] [9]
72-5 - Fish - Life-Cycle	TGAI	A,B,C,D,G	Yes	GS0080155	No
72-6 - Aquatic Organism Accumulation	TGAI, PAI OR Degradation Product	A,B,C,D,G	No	-	Reserved[4]
72-7 - Simulated or Actual Field Testing - Aquatic Organisms	TEP	A,B,C,D,G	Partial	00049128;GS0080153	Reserved[4]

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

§158.145 Wildlife and Aquatic Organisms
(continued)

1. Composition: TGAI = Technical grade of the active ingredient; PAI = pure active ingredient; TEP = Typical end-use product;

2. The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food Crop; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

3. Data must be submitted no later than APR 1986.

4. These data may be required pending the results of the Environmental Fate tests.

5. These data may be required pending the results of the avain reproduction study and requested Environmental Fate tests.

6. Either reference may be cited for the warmwater fish data requirement.

7. An aquatic invertebrate life-cycle study must be submitted. The fish early life-cycle study is acceptable.

8. Data must be submitted on the TEP for all substantially different formulations used on cranberries, forests, rice and mosquitoes for aquatic organisms.

9. Data must be submitted by OCT 1984.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirement	Composition[1]	Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.140 Reentry Protection					
132-1 - Foliar Dissipation	TEP	A,B,E,F,H	No	—	No[4]
132-1 - Soil Dissipation	TEP	A,B,E,F,H	No	—	No[4]
133-3 - Dermal Exposure	TEP	A,B,E,F,H	No	—	No[4]
133-4 - Inhalation Exposure	TEP	A,B,E,F,H	No	—	No[4]

1. Composition: TEP = Typical end-use product.

2. The use patterns are coded as follows: A = Terrestrial, Food Crop; B = Terrestrial, Non-Food; C = Aquatic, Food Crop; D = Aquatic, Non-Food; E = Greenhouse, Food Crop; F = Greenhouse, Non-Food; G = Forestry; H = Domestic, Outdoor; I = Indoor.

3. Data must be submitted no later than ______________________.

4. Data to support the establishment of reentry protection standards are not required. No reentry intervals are needed for carbaryl based on based on available environmental fate and toxicology data.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirements	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.150 Plant Protection					
121-1 - TARGET AREA PHYTOTOXICITY	EP	-	No	-	No[4]
NONTARGET AREA PHYTOTOXICITY					
TIER I					
122-1 - Seed Germination/ Seedling Emergence	TGAI	-	No	-	No[4]
122-1 - Vegetative Vigor	TGAI	-	No	-	NO[4]
122-2 - Aquatic Plant Growth	TGAI	-	No	-	No[4]
TIER II					
123-1 - Seed Germination/ Seedling Emergence	TGAI	-	No	-	No[4]
123-1 - Vegetative Vigor	TGAI	-	No	-	No[4]
123-2 - Aquatic Plant Growth	TGAI	-	No	-	No[4]
TIER III					
124-1 - Terrestrial Field	TEP	-	No	-	No[4]
124-2 - Aquatic Field	TEP	-	No	-	No[4]

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[1] Composition: TGAI = Technical grade of the active ingredient; TEP = Typical end-use product. EP = End-use product.

[2] The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food Crop; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

[3] Data must be submitted no later than ______________________.

[4] These data are not required because it is believed there is not a phytotoxicity problem with carbaryl.

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.155 Nontarget Insect					
NONTARGET INSECT TESTING - POLLINATORS:					
141-1 - Honey bee acute contact LD_{50}	TGAI	A,B,G,H	Yes	00036935	No
141-2 - Honey bee - toxicity of residues on foliage	TEP	A,B,G,H	Yes	05000837	No
141-3 - Wild bees important in alfalfa pollination - toxicity of residues on foliage	TEP	A	Yes	05000837	No
141-4 - Honey bee subacute feeding study	[Reserved][4]				
141-5 - Field testing for pollinators	TEP	A,B,G,H	No	-	No[5]

TABLE A
GENERIC DATA REQUIREMENTS FOR CARBARYL

Data Requirement	Composition[1]	Use[2] Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[3]
§158.155 Nontarget Insect (continued)					
NONTARGET INSECT TESTING - AQUATIC INSECTS:					
142-1 - Acute toxicity to aquatic insects	-	A,B,C,D,G,H	Reserved[6]		
142-2 - Aquatic insect life-cycle study	-	A,B,C,D,G,H	Reserved[6]		
142-3 - Simulated or actual field testing for aquatic insects	-	A,B,C,D,G,H	Reserved[6]		
143-1 thru 143-3 - NONTARGET INSECT TESTING - PREDATORS AND PARASITES	-	A,B,C,D,G,H	Reserved[6]		

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1. Composition: TGAI = Technical grade of the active ingredient; TEP = Typical end-use product.
2. The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aquatic, Food Crop: D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.
3. Data must be submitted no later than ____________________.
4. Reserved pending development of test methodology.
5. Required only on a case-by-case basis.
6. Reserved pending decision as to whether data requirement should be established.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING CHEMICAL: CARBARYL

Guideline Citation and Name of Test	Test Substance[1]	Guidelines Status[2]	Are Data[3] Required Yes	No	Footnote Number
§158.120 - Product Chemistry					
Product Identity:					
61-1 - Identity of Ingredients	MP	R	☒	☐	
61-2 - Statement of Composition	MP	R	☒	☐	
61-3 - Discussion of Formation of Ingredients	MP	R	☒	☐	
Analysis and Certification of Product Ingredients					
62-1 - Preliminary Analysis	MP	R	☒	☐	
62-2 - Certification of Limits	MP	R	☒	☐	
62-3 - Analytical Methods for Enforcement of Limits	MP	R	☒	☐	
Physical and Chemical Characteristics					
63-2 - Color	MP	R	☒	☐	
63-3 - Physical State	MP	R	☒	☐	
63-4 - Odor	MP	R	☒	☐	
63-7 - Density, Bulk Density, or Specific Gravity	MP	R	☒	☐	
63-12 - pH	MP	R	☒	☐	

TABLE B

PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING CHEMICAL: CARBARYL

Guideline Citation and Name of Test	Test Substance[1]	Guidelines Status[2]	Are Data[3] Required Yes	No	Footnote Number
§158.120 - Product Chemistry					
Physical and Chemical Characteristics (Continued)					
63-14 - Oxidizing or Reducing Action	MP	CR	☒	☐	
63-15 - Flammability	MP	CR	☒	☐	
63-16 - Explodability	MP	R	☒	☐	
63-17 - Storage Stability	MP	R	☒	☐	
63-18 - Viscosity	MP	CR	☒	☐	
63-19 - Miscibility	MP	CR	☒	☐	
63-20 - Corrosion Characteristics	MP	R	☒	☐	
Other Requirements:					
64-1 - Submittal of samples	PAI	CR	☐	☒	

1. Test substance: MP = Manufacturing-use product; PAI = Pure active ingredient

2. Guideline status: R = Required; CR = Conditionally required

3. Data must be submitted by OCT 1984.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING CARBARYL

Data Requirement	Composition Characteristics	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?[1]
§158.135 Toxicology				
ACUTE TESTING				
81-1 - Oral LD_{50}	Dust bases between 70% and 99% a.i.[2]	Yes	GS0080999*	No
	Dust bases 69% and lower in a.i.[3]	No	-	Yes
	Wettable powder base 50% a.i.[4]	No	-	Yes
	Bait base 12% a.i.[5]	No	-	Yes
81-2 - Dermal LD_{50}	Dust bases between 70% and 99% a.i.[2]	Yes	GS0080999*	No
	Dust bases 69% and lower in a.i.[3]	Yes	GS0080999*	No
	Wettable powder base 50% a.i.[4]	Yes	GS0080999*	No
	Bait base 12% a.i.[5]	Yes	GS0080999*	No
81-3 - Inhalation LC_{50}	Dust bases between 70% and 99% a.i.[2]	No	-	Yes
	Dust bases 69% and lower in a.i.[3]	No	-	Yes
	Wettable powder base 50% a.i.[4]	No	-	Yes
	Bait base 12% a.i.[5]	No	-	Yes
81-4 - Primary Eye Irritation	Dust bases between 70% and 99% a.i.[2]	Yes	GS0080999*	No
	Dust bases 69% and lower in a.i.[3]	Yes	GS0080999*	No
	Wettable powder base 50% a.i.[4]	Yes	GS0080999*	No
	Bait base 12% a.i.[5]	Yes	GS0080999*	No
81-5 - Primary Dermal Irritation	Dust bases between 70% and 99% a.i.[2]	Yes	GS0080999*	No
	Dust bases 69% and lower in a.i.[3]	Yes	GS0080999*	No
	Wettable powder base 50% a.i.[4]	Yes	GS0080999*	No
	Bait base 12% a.i.[5]	Yes	GS0080999*	No
81-6 - Dermal Sensitization	Dust bases between 70% and 99% a.i.[2]	No	-	Yes
	Dust bases 69% and lower in a.i.[3]	No	-	Yes
	Wettable powder base 50% a.i.[4]	No	-	Yes
	Bait base 12% a.i.[5]	No	-	Yes

*Data submitted by Union Carbide Agricultural Products Co., Inc. These data may be compensable.

TABLE B

PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING CARBARYL

§158.135 Toxicology (continued)

1. Data must be submitted no later than OCT 1984.

2. Products currently registered that fall in this category are: EPA Registration Nos. 239-2496, 264-324, 264-325, 264-326, 264-328, 264-329, 769-450.

3. Products currently registered that fall in this category are: EPA Registartion Nos. 264-313, 264-327, 476-1886, 1386-199, 2124-370, 3743-180, 5481-190, 5905-338.

4. Product currently registered that falls in this category is: EPA Registartion Nos. 239-2487.

5. Product currently registered that falls in this category is: EPA Registration Nos. 264-347.

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION GUIDANCE DOCUMENT BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registration Under this Guidance Document

GS0080001 Union Carbide Corporation (19??) [Residue Data Concerning Potatoes]. (Unpublished study received May 15, 1970 under PP# 902; CDL: 091556)

GS0080002 Union Carbide Corporation (1958) [Residue Data Concerning Apples]. (Unpublished study received Feb. 6, 1958 under PP# 167; CDL: 090193)

GS0080003 Union Carbide Corporation (1958) [Residue Data Concerning Apples, Peaches, Beans]. (Unpublished study received on unknown date under PP# 193; CDL: 092469)

GS0080004 Union Carbide Corporation (19??) [Residue Data Concerning Apples, Peaches, Beans]. (Unpublished study received on unknown date under PP# 193; CDL: 092470)

GS0080005 Union Carbide Corporation (1959) [Residue Data Concerning Cottonseed]. (Unpublished study received Feb. 27, 1959 under PP# 212; CDL: 092490)

GS0080006 Union Carbide Corporation (1960) [Residue Data Concerning Milk and Meat of Cattle, and Corn and Corn Fodder and Forage]. (Unpublished study received Jan 5, 1960 under PP# 243; CDL: 090270)

GS0080007 Union Carbide Corporation (19??) [Residue Data Concerning Milk and Meat of Cattle, and Corn and Corn Fodder and Forage]. (Unpublished study received Jan 5, 1960 under PP# 243; CDL: 092520)

GS0080008 Union Carbide Corporation (1960) [Residue Data Concerning Filberts]. (Unpublished study received Oct 7, 1960 under PP# 277; CDL: 090299)

GS0080009 Union Carbide Corporation (1960) [Residue Data Concerning Apricots, Nectarines, Cranberries, Blueberries and Lettuce]. (Unpublished study received Nov 25, 1960 under PP# 281; CDL: 090303)

GS0080010 Union Carbide Corporation (1961) [Residue Data Concerning Forage, Grain and Field Crops]. (Unpublished study received Mar 10, 1961 under PP# 302; CDL: 090343)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION GUIDANCE DOCUMENT BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registration Under this Guidance Document

GS0080011 Union Carbide Corporation (1961) [Residue Data Concerning Almonds and Almond Hull]. (Unpublished study received Aug 17, 1961 under PP# 329; CDL: 090356)

GS0080012 Union Carbide Corporation (1960) [Residue Data Concerning Almonds and Walnuts]. (Unpublished study received Aug 17, 1961 under PP# 329; CDL: 092611)

GS0080013 Union Carbide Corporation (19??) [Residue Data Concerning Asparagus]. (Unpublished study received on unknown date under PP# 333; CDL: 092615)

GS0080014 Union Carbide Corporation (19??) [Residue Data Concerning Asparagus]. (Unpublished study received on unknown date under PP# 333; CDL: 092616)

GS0080015 Union Carbide Corporation (19??) [Residue Data Concerning Pecans]. (Unpublished study received Oct. 19, 1972 under PP# 1324; CDL: 093553)

GS0080016 Interregional Research Project No. 4 (19??) [Residue Data concerning Sunflower Seeds]. (Unpublished study received on unknown date under PP# 1564; CDL: 099745)

GS0080017 Interregional Research Project No. 4 (1978) [Residue Data Concerning Lentils]. (Unpublished study received on unknown date under PP# 1847; CDL: 097397)

GS0080018 Interregional Research Project No. 4 (1976) [Residue Data Concerning Celery]. (Unpublished study received on unknown date under PP# 1935; CDL: 097769)

GS0080019 Union Carbide Corporation (1958), [Residue Data Concerning Grapes]. (Unpublished study received Feb 24, 1958 under PP# 169; CDL: 090196)

GS0080020 Union Carbide Corporation (19??) [Residue Data Concerning Grapes]. (Unpublished study received Feb 24, 1958 under PP# 169; CDL: 092447)

GS0080021 Union Carbide Corporation (19??) [Residue Data Concerning Forage of Alfalfa, Bean, Clovers, Cotton, Cowpea, Grasses, Sorghums, Soybean and Sugar Beet Tops; Cured Hay of Alfalfa, Bean, Clovers, Cowpea, Grasses, Peanut, Rice, Straw and Soybean; Sorghum Grain, Peanuts, Rice, Soybeans, and Cowpeas]. (Unpublished study received Mar. 10, 1961 under PP# 302; CDL: 092582)

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REGISTRATION GUIDANCE DOCUMENT BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registration Under this Guidance Document

GS0080022 Union Carbide Corporation (1977) [Residue Data Concerning Small Grains, Cotton, Field Corn, Forests, Peanuts, Rangeland and Pasture, Rice, Sorghum, Sprinkler Irrigated Crops, and Sweet Corn]. (Unpublished study received Dec 23, 1977 under PP# 2036; CDL: 096707)

GS0080023 Union Carbide Corporation (1977) [Residue Data Concerning Small Grains, Cotton, Field Corn, Forests, Peanuts, Rangeland and Pasture, Rice, Sorghum, Sprinkler Irrigated Crops, and Sweet Corn]. (Unpublished study received Dec 23, 1977 under PP# 2036; CDL: 096708)

GS0080024 Union Carbide Corporation (1978) [Residue Data Concerning Small Grains, Cotton, Field Corn, Forests, Peanuts, Rangeland and Pasture, Rice, Sorghum, Sprinkler Irrigated Crops, and Sweet Corn]. (Unpublished study received Oct 30, 1978 under PP# 2036; CDL: 235625)

GS0080025 Union Carbide Corporation (1960) [Residue Data Concerning Alfalfa, Grass Forage, Sorghum Forage and Sorghum Grain]. (Unpublished study received on unknown date under PP# 263; CDL: 092540)

GS0080026 Union Carbide Corporation (19??) [Residue Data Concerning Alfalfa, Grass Forage, Sorghum Forage and Sorghum Grain]. (Unpublished study received on unknown date under PP# 263 CDL: 092541)

GS0080027 Union Carbide Corporation (19??) [Residue Data Concerning Apricots, Nectarines, Cranberries, Blueberries and Lettuce]. (Unpublished study received Nov. 25, 1960 under PP# 281; CDL: 092559)

GS0080028 Union Carbide Corporation (1959) [Residue Data Concerning Plums, Cherries and Strawberries]. (Unpublished study received Aug. 21, 1959 under PP# 222; CDL: 090250)

GS0080029 Union Carbide Corporation (1961) [Residue Data Concerning Grapefruit]. (Unpublished study received Aug. 4, 1961 under PP# 327; CDL: 090354)

GS0080030 Union Carbide Corporation (1961) [Residue Data Concerning Citrus Fruits]. (Unpublished study received Aug. 4, 1961 under PP# 327; CDL: 092609)

Appendix II-1

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION GUIDANCE DOCUMENT BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registration Under this Guidance Document

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APPENDIX II-2

OMB Approval No. 2000-0468 (Expires 12-31-83)

FIFRA SECTION 3(C)(2)(B) SUMMARY SHEET	EPA REGISTRATION NO.
PRODUCT NAME	
APPLICANT'S NAME	DATE GUIDANCE DOCUMENT ISSUED

With respect to the requirement to submit "generic" data imposed by the FIFRA section 3(C)(2)(B) notice contained in the referenced Guidance Document, I am responding in the following manner:

☐ 1. I will submit data in a timely manner to satisfy the following requirements. If the test procedures I will use deviate from (or are not specified in) the Registration Guidelines or the Protocols contained in the Reports of Expert Groups to the Chemicals Group, OECD Chemicals Testing Programme, I enclose the protocols that I will use:

☐ 2. I have entered into an agreement with one or more other registrants under FIFRA section 3(C)(2)(B)(ii) to satisfy the following data requirements. The tests, and any required protocols, will be submitted to EPA by:

NAME OF OTHER REGISTRANT

☐ 3. I enclose a completed "Certification of Attempt to Enter Into an Agreement with Other Registrants for Development of Data" with respect to the following data requirements:

☐ 4. I request that you amend my registration by deleting the following uses (this option is not available to applicants for new products):

☐ 5. I request voluntary cancellation of the registration of this product. (This option is not available to applicants for new products.)

REGISTRANT'S AUTHORIZED REPRESENTATIVE	SIGNATURE	DATE

EPA Form 8580-1 (10-82)

APPENDIX II-3

OMB Approval No. 2000-0468 (Expires: 12-31-83)

CERTIFICATION OF ATTEMPT TO ENTER INTO AN AGREEMENT WITH OTHER REGISTRANTS FOR DEVELOPMENT OF DATA

(To qualify, certify ALL four items)

1. I am duly authorized to represent the following firm(s) who are subject to the requirements of a Notice under FIFRA Section 3(c)(2)(B) contained in a Guidance Document to submit data concerning the active ingredient:	**GUIDANCE DOCUMENT DATE** **ACTIVE INGREDIENT**

NAME OF FIRM	EPA COMPANY NUMBER

(This firm or group of firms is referred to below as "my firm".)

2. My firm is willing to develop and submit the data as required by that Notice, if necessary. However, my firm would prefer to enter into an agreement with one or more other registrants to develop jointly, or to share in the cost of developing, the following required items or data:

3. My firm has offered in writing to enter into such an agreement. Copies of the offers are attached. That offer was irrevocable and included an offer to be bound by an arbitration decision under FIFRA Section 3(c)(2)(B)(iii) if final agreement on all terms could not be reached otherwise. This offer was made to the following firm(s) on the following date(s):

NAME OF FIRM	DATE OF OFFER

However, none of those firm(s) accepted my offer.

4. My firm requests that EPA not suspend the registration(s) of my firm's product(s), if any of the firms named in paragraph (3) above have agreed to submit the data listed in paragraph (2) above in accordance with the Notice. I understand EPA will promptly inform me whether my firm must submit data to avoid suspension of its registration(s) under FIFRA Section 3(c)(2)(B). (This statement does not apply to applicants for new products.) I give EPA permission to disclose this statement upon request.

TYPED NAME	SIGNATURE	DATE

EPA Form 8580-6 (10-82)

PRODUCT SPECIFIC DATA REPORT

EPA Registration No.________________ Guidance Document for __________________________

Date ______________________________

Registration Guideline No.	Name of Test	Test not required for my product listed above (check below)	I am complying with data requirements by		(For EPA Use Only) Accession Numbers Assigned
			Citing MRID#	Submitting Data (Attached)	
§158.20 PRODUCT CHEMISTRY					
61-1	Identity of ingredients				
61-2	Statement of composition				
61-3	Discussion of formation of ingredients				
62-1	Preliminary analysis				
62-2	Certification of limits				
62-3	Analytical methods for enforcement limits				
63-2	Color				
63-3	Physical state				
63-4	Odor				
63-5	Melting point				
63-6	Boiling point				
63-7	Density, bulk-density, or specific gravity				
63-8	Solubility				
63-9	Vapor pressure				
63-10	Dissociation constant				
63-11	Octanol/water partition coefficient				
63-12	pH				
63-13	Stability				
63-14	Oxidizing/reducing reaction				
63-15	Flammability				
63-16	Explodability				
63-17	Storage stability				
63-18	Viscosity				
63-19	Miscibility				

63-20	Corrosion characteristics				
63-21	Dielectric breakdown voltage				
§158.135 TOXICOLOGY					
81-1	Acute oral LD-50, rat				
81-2	Acute dermal LD-50				
81-3	Acute inhalation, LC-50 rat				
81-4	Primary eye irritation, rabbit				
81-5	Primary dermal irritation				
81-6	Dermal sensitization				

~~cant obtained the data from another firm (identify); applicant copied data from a publication; applicant obtained a copy of the data from EPA).~~

~~(d) The applicant shall submit with his application a statement that EPA, in its evaluation of the properties, efficacy, and safety of the formulated end-use product, may not consider any data as supporting the application, except the following data:~~

~~(1) The data the applicant has submitted to EPA under paragraph (b) of this section;~~

~~(2) Other data pertaining to the safety of the product's active ingredients, rather than to the safety of the end-use product; and~~

~~(3) Existing tolerances, food additive regulations, exemptions, and other clearances issued under the Federal Food, Drug, and Cosmetic Act.~~

~~(e) If the applicant knows that any item of data he submitted under this section was generated by (or at the expense of) another person who originally submitted the data to EPA (or its predecessor, USDA) on or after January 1, 1970, to support an application for registration, experimental use permit, or amendment adding a new use to an existing registration, or for reregistration (unless the applicant and the original data submitter have reached written agreement on the amount and the terms of payment of any compensation that may be payable under FIFRA section 3(c)(1)(D)(ii) with regard to approval of the application), the applicant shall submit to EPA a statement that he has furnished to each such identified original data submitter:~~

~~(1) A notification of the applicant's intent to apply for registration, including the proposed product name;~~

~~(2) An offer to pay the person compensation, with regard to the approval of the application, to the extent required by FIFRA sections 3(c)(1)(D) and 3(c)(2)(D);~~

~~(3) An identification of the item(s) of data to which the offer applies;~~

~~(4) An offer to commence negotiations to ascertain the amount and terms of compensation to be paid; and~~

~~(5) The applicant's name, address, and telephone number.~~

~~(f) If the applicant's product contains any active ingredient other than those that are present solely because of the incorporation into the product, during formulation, of one or more other registered pesticide products purchased from another producer, then the applicant shall also comply with § 162.9-5 as to such active ingredient, and the application shall contain an acknowledgment that for purposes of FIFRA section 3(c)(1)(D) the application relies on (and any resulting registration should be regarded as if it were based on the Administrator's consideration of) the following data:~~

~~(1) All data submitted or specifically cited by the applicant in support of the registration; and~~

~~(2) Each other item of data in the Agency's files which:~~

~~(i) Concerns the properties or effects of any such active ingredient; and~~

~~(ii) Is one of the types of data that EPA would require to be submitted for scientific review by EPA if the applicant sought the initial registration under FIFRA Section 3(c)(5) of a product with composition and intended uses identical to those proposed for the applicant's product, under the data requirements in effect on the date EPA approves the applicant's present application.~~

~~(Secs. 3, 6, and 25 of FIFRA, as amended, 7 U.S.C. 136 *et seq.*)~~

~~[44 FR 27953, May 11, 1979]~~

§ 162.10 Labeling requirements.

(a) *General*—(1) *Contents of the label.* Every pesticide products shall bear a label containing the information specified by the Act and the regulations in this Part. The contents of a label must show clearly and prominently the following:

(i) The name, brand, or trademark under which the product is sold as prescribed in paragraph (b) of this section;

(ii) The name and address of the producer, registrant, or person for whom produced as prescribed in paragraph (c) of this section;

(iii) The net contents as prescribed in paragraph (d) of this section;

(iv) The product registration number as prescribed in paragraph (e) of this section;

(v) The producing establishment number as prescribed in paragraph (f) of this section;

(vi) An ingredient statement as prescribed in paragraph (g) of this section;

(vii) Warning or precautionary statements as prescribed in paragraph (h) of this section;

(viii) The directions for use as prescribed in paragraph (i) of this section; and

(ix) The use classification(s) as prescribed in paragraph (j) of this section.

(2) *Prominence and legibility.* (i) All words, statements, graphic representations, designs or other information required on the labeling by the Act or the regulations in this part must be clearly legible to a person with normal vision, and must be placed with such conspicuousness (as compared with other words, statements, designs, or graphic matter on the labeling) and expressed in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use.

(ii) All required label text must:

(A) Be set in 6-point or larger type;

(B) Appear on a clear contrasting background; and

(C) Not be obscured or crowded.

(3) *Language to be used.* All required label or labeling text shall appear in the English language. However, the Agency may require or the applicant may propose additional text in other languages as is considered necessary to protect the public. When additional text in another language is necessary, all labeling requirements will be applied equally to both the English and other-language versions of the labeling.

(4) *Placement of Label*—(i) *General.* The label shall appear on or be securely attached to the immediate container of the pesticide product. For purposes of this Section, and the misbranding provisions of the Act, "securely attached" shall mean that a label can reasonably be expected to remain affixed during the foreseeable conditions and period of use. If the immediate container is enclosed within a wrapper or outside container through which the label cannot be clearly read, the label must also be securely attached to such outside wrapper or container, if it is a part of the package as customarily distributed or sold.

(ii) *Tank cars and other bulk containers*—(A) *Transportation.* While a pesticide product is in transit, the appropriate provisions of 49 CFR Parts 170-189, concerning the transportation of hazardous materials, and specifically those provisions concerning the labeling, marking and placarding of hazardous materials and the vehicles carrying them, define the basic Federal requirements. In addition, when any registered pesticide product is transported in a tank car, tank truck or other mobile or portable bulk container, a copy of the accepted label must be attached to the shipping papers, and left with the consignee at the time of delivery.

(B) *Storage.* When pesticide products are stored in bulk containers, whether mobile or stationary, which remain in the custody of the user, a copy of the label of labeling, including all appropriate directions for use, shall be securely attached to the container in the immediate vicinity of the discharge control valve.

(5) *False or misleading statements.* Pursuant to section 2(q)(1)(A) of the Act, a pesticide or a device declared subject to the Act pursuant to § 162.15, is misbranded if its labeling is false or misleading in any particular including both pesticidal and non-pesticidal claims. Examples of statements or representations in the labeling which constitute misbranding include:

(i) A false or misleading statement concerning the composition of the product;

(ii) A false or misleading statement concerning the effectiveness of the product as a pesticide or device;

(iii) A false or misleading statement about the value of the product for purposes other than as a pesticide or device;

(iv) A false or misleading comparison with other pesticides or devices;

(v) Any statement directly or indirectly implying that the pesticide or device is recommended or endorsed by any agency of the Federal Government;

(vi) The name of a pesticide which contains two or more principal active ingredients if the name suggests one or more but not all such principal active ingredients even though the names of the other ingredients are stated elsewhere in the labeling;

(vii) A true statement used in such a way as to give a false or misleading impression to the purchaser;

(viii) Label disclaimers which negate or detract from labeling statements required under the Act and these regulations;

(ix) Claims as to the safety of the pesticide or its ingredients, including statements such as "safe," "nonpoisonous," "noninjurious," "harmless" or "nontoxic to humans and pets" with or without such a qualifying phrase as "when used as directed"; and

(x) Non-numerical and/or comparative statements on the safety of the product, including but not limited to:

(A) "Contains all natural ingredients";

(B) "Among the least toxic chemicals known"

(C) "Pollution approved"

(6) *Final printed labeling.* (i) Except as provided in paragraph (a)(6)(ii) of this section, final printed labeling must be submitted and accepted prior to registration. However, final printed labeling need not be submitted until draft label texts have been provisionally accepted by the Agency.

(ii) Clearly legible reproductions or photo reductions will be accepted for unusual labels such as those silk-screened directly onto glass or metal containers or large bag or drum labels. Such reproductions must be of microfilm reproduction quality.

(b) *Name, brand, or trademark.* (1) The name, brand, or trademark under which the pesticide product is sold shall appear on the front panel of the label.

(2) No name, brand, or trademark may appear on the label which:

(i) Is false or misleading, or

(ii) Has not been approved by the Administrator through registration or supplemental registration as an additional name pursuant to § 162.6(b)(4).

(c) Name and address of producer, registrant, or person for whom produced. An unqualified name and address given on the label shall be considered as the name and address of the producer. If the registrant's name appears on the label and the registrant is not the producer, or if the name of the person for whom the pesticide was produced appears on the label, it must be qualified by appropriate wording such as "Packed for * * *," "Distributed by * * *," or "Sold by * * *" to show that the name is not that of the producer.

(d) *Net weight or measure of contents.* (1) The net weight or measure of content shall be exclusive of wrappers or other materials and shall be the average content unless explicitly stated as a minimum quantity.

(2) If the pesticide is a liquid, the net content statement shall be in terms of liquid measure at 68° F (20°C) and shall be expressed in conventional American units of fluid ounces, pints, quarts, and gallons.

(3) If the pesticide is solid or semisolid, viscous or pressurized, or is a mixture of liquid and solid, the net content statement shall be in terms of weight expressed as avoirdupois pounds and ounces.

(4) In all cases, net content shall be stated in terms of the largest suitable units, i.e., "1 pound 10 ounces" rather than "26 ounces."

(5) In addition to the required units specified, net content may be expressed in metric units.

(6) Variation above minimum content or around an average is permissible only to the extent that it represents deviation unavoidable in good manufacturing practice. Variation below a stated minimum is not permitted. In no case shall the average content of the packages in a shipment fall below the stated average content.

(e) *Product registration number.* The registration number assigned to the pesticide product at the time of registration shall appear on the label, preceded by the phrase "EPA Registration No.," or the phrase "EPA Reg. No." The registration number shall be set in type of a size and style similar to other print on that part of the label on which it appears and shall run parallel to it. The registration number and the required identifying phrase shall not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency.

(f) *Producing establishments registration number.* The producing establishment registration number preceded by the phrase "EPA Est.", of the final establishment at which the product was produced may appear in any suitable location on the label or immediate container. It must appear on the wrapper or outside container of the package if the EPA establishment registration number on the immediate container cannot be clearly read through such wrapper or container.

(g) *Ingredient statement*—(1) *General.* The label of each pesticide product must bear a statement which contains the name and percentage by weight of each active ingredient, the total percentage by weight of all inert ingredients; and if the pesticide contains arsenic in any form, a statement of the percentages of total and water-soluble arsenic calculated as elemental arsenic. The active ingredients must be designated by the term "active ingredients" and the inert ingredients by the term "inert ingredients," or the singular forms of these terms when appropriate. Both terms shall be in the same type size, be aligned to the same margin and be equally prominent. The statement "Inert Ingredients, none" is not required for pesticides which contain 100 percent active ingredients. Unless the ingredient statement is a complete analysis of the pesticide, the term "analysis" shall not be used as a heading for the ingredient statement.

(2) *Position of ingredient statement.* (i) The ingredient statement is normally required on the front panel of the label. If there is an outside container or wrapper through which the ingredient statement cannot be clearly read, the ingredient statement must also appear on such outside container or wrapper. If the size or form of the package makes it impracticable to place the ingredient statement on the front panel of the label, permission may be granted for the ingredient statement to appear elsewhere.

(ii) The text of the ingredient statement must run parallel with other text on the panel on which it appears, and must be clearly distinguishable from and must not be placed in the body of other text.

(3) *Names to be used in ingredient statement.* The name used for each ingredient shall be the accepted common name, if there is one, followed by the chemical name. The common name may be used alone only if it is well known. If no common name has been established, the chemical name alone shall be used. In no case will the use of a trademark or proprietary name be permitted unless such name has been accepted as a common name by the Administrator under the authority of Section 25(c)(6).

(4) *Statements of percentages.* The percentages of ingredients shall be stated in terms of weight-to-weight. The sum of percentages of the active and the inert ingredients shall be 100. Percentages shall not be expressed by a range of values such as "22-25%." If the uses of the pesticide product are expressed as weight of active ingredient per unit area, a statement of the weight of active ingredient per unit volume of the pesticide formulation shall also appear in the ingredient statement.

(5) *Accuracy of stated percentages.* The percentages given shall be as precise as possible reflecting good manufacturing practice. If there may be unavoidable variation between manufacturing batches, the value stated for each active ingredient shall be the lowest percentage which may be present.

(6) *Deterioration.* Pesticides which change in chemical composition significantly must meet the following labeling requirements:

(i) In cases where it is determined that a pesticide formulation changes chemical composition significantly, the product must bear the following statement in a prominent position on the label: "Not for sale or use after [date]."

(ii) The product must meet all label claims up to the expiration time indicated on the label.

(7) *Inert ingredients.* The Administrator may require the name of any

inert ingredient(s) to be listed in the ingredient statement if he determines that such ingredient(s) may pose a hazard to man or the environment.

(h) *Warnings and precautionary statements.* Required warnings and precautionary statements concerning the general areas of toxicological hazard including hazard to children, environmental hazard, and physical or chemical hazard fall into two groups; those required on the front panel of the labeling and those which may appear elsewhere. Specific requirements concerning content, placement, type size, and prominence are given below.

(1) *Required front panel statements.* With the exception of the child hazard warning statement, the text required on the front panel of the label is determined by the Toxicity Category of the pesticide. The category is assigned on the basis of the highest hazard shown by any of the indicators in the table below:

Hazard indicators	Toxicity categories			
	I	II	III	IV
Oral LD_{50}	Up to and including 50 mg/kg	From 50 thru 500 mg/kg	From 500 thru 5000 mg/kg	Greater than 5000 mg/kg
Inhalation LC_{50}	Up to and including .2 mg/liter.	From .2 thru 2 mg/liter	From 2. thru 20 mg/liter	Greater than 20 mg/liter.
Dermal LD_{50}	Up to and including 200 mg/kg.	From 200 thru 2000	From 2,000 thru 20,000	Greater than 20,000.
Eye effects	Corrosive, corneal opacity not reversible within 7 days.	Corneal opacity reversible within 7 days, irritation persisting for 7 days.	No corneal opacity; irritation reversible, within 7 days.	No irritation.
Skin effects	Corrosive	Severe irritation at 72 hours.	Moderate irritation at 72 hours.	Mild or slight irritation at 72 hours.

(i) *Human hazard signal word—*(A) *Toxicity Category I.* All pesticide products meeting the criteria of Toxicity Category I shall bear on the front panel the signal word "Danger." In addition if the product was assigned to Toxicity Category I on the basis of its oral, inhalation or dermal toxicity (as distinct from skin and eye local effects) the word "Poison" shall appear in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word "poison."

(B) *Toxicity Category II.* All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word "Warning."

(C) *Toxicity Category III.* All pesticide products meeting the criteria of Toxicity Category III shall bear on the front panel the signal word "Caution."

(D) *Toxicity Category IV.* All pesticide products meeting the criteria of Toxicity Category IV shall bear on the front panel the signal word "Caution."

(E) *Use of signal words.* Use of any signal word(s) associated with a higher Toxicity Category is not permitted except when the Agency determines that such labeling is necessary to prevent unreasonable adverse effects on man or the environment. In no case shall more than one human hazard signal word appear on the front panel of a label.

(ii) *Child hazard warning.* Every pesticide product label shall bear on the front panel the statement "keep out of reach of children." Only in cases where the likelihood of contact with children during distribution, marketing, storage or use is demonstrated by the applicant to be extremely remote, or if the nature of the pesticide is such that it is approved for use on infants or small children, may the Administrator waive this requirement.

(iii) *Statement of practical treatment—*(A) *Toxicity Category I.* A statement of practical treatment (first aid or other) shall appear on the front panel of the label of all pesticides falling into Toxicity Category I on the basis of oral, inhalation or dermal toxicity. The Agency may, however, permit reasonable variations in the placement of the statement of practical treatment is some reference such as "See statement of practical treatment on back panel" appears on the front panel near the word "Poison" and the skull and crossbones.

(B) *Other toxicity categories.* The statement of practical treatment is not required on the front panel except as described in paragraph (h)(1)(iii)(A) of this section. The applicant may, however, include such a front panel statement at his option. Statements of practical treatment are, however, required elsewhere on the label in accord with paragraph (h)(2) of this section if they do not appear on the front panel.

(iv) *Placement and prominence.* All the require front panel warning statements shall be grouped together on the label, and shall appear with sufficient prominence relative to other front panel text and graphic material to make them unlikely to be overlooked under customary conditions of purchase and use. The following table shows the minimum type size requirements for the front panel warning statements on various sizes of labels:

Size of label front panel in square inches	Points	
	Required signal word, all capitals	"Keep out of reach of Children
5 and under	6	6
Above 5 to 10	10	6
Above 10 to 15	12	8
Above 15 to 30	14	10
Over 30	18	12

(2) *Other required warnings and precautionary statements.* The warnings and precautionary statements as required below shall appear together on the label under the general heading "Precautionary Statements" and under appropriate subheadings of "Hazard to Humans and Domestic Animals," "Environmental Hazard" and "Physical or Chemical Hazard."

(i) *Hazard to humans and domestic animals.* (A) Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. The precautionary paragraph shall be immediately preceded by the appropriate hazard signal word.

(B) The following table depicts typical precautionary statements. These statements must be modified or expanded to reflect specific hazards.

Toxicity category	Precautionary statements by toxicity category	
	Oral, inhalation, or dermal toxicity	Skin and eye local effects
I	Fatal (poisonous) if swallowed [inhaled or absorbed through skin]. Do not breathe vapor [dust or spray mist]. Do not get in eyes, on skin, or on clothing [Front panel statement of practical treatment required.].	Corrosive, causes eye and skin damage [or skin irritation]. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. [Appropriate first aid statement required.]
II	May be fatal if swallowed [inhaled or absorbed through the skin]. Do not breathe vapors [dust or spray mist]. Do not get in eyes, on skin, or on clothing. [Appropriate first aid statements required.].	Causes eye [and skin] irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. [Appropriate first aid statement required.]
III	Harmful if swallowed [inhaled or absorbed through the skin]. Avoid breathing vapors [dust or spray mist]. Avoid contact with skin [eyes or clothing]. [Appropriate first aid statement required.].	Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.
IV	[No precautionary statements required.]	[No precautionary statements required.]

(ii) *Environmental hazards.* Where a hazard exists to non target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury or damage. Examples of the hazard statements and the circumstances under which they are required follow:

(A) If a pesticide intended for outdoor use contains an active ingredient with a mammalian acute oral LD$_{50}$ of 100 or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(B) If a pesticide intended for outdoor use contains an active ingredient with a fish acute LC$_{50}$ of 1 ppm or less, the statement "This Pesticide is Toxic to Fish" is required.

(C) If a pesticide intended for outdoor use contains an active ingredient with an avian acute oral LD$_{50}$ of 100 mg/kg or less, or a subacute dietary LC$_{50}$ of 500 ppm or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(D) If either accident history or field studies demonstrate that use of the pesticide may result in fatality to birds, fish or mammals, the statement "This pesticide is extremely toxic to wildlife (fish)" is required.

(E) For uses involving foliar application to agricultural crops, forests, or shade trees, or for mosquito abatement treatments, pesticides toxic to pollinating insects must bear appropriate label cautions.

(F) For all outdoor uses other than aquatic applications the label must bear the caution "Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes."

(iii) *Physical or chemical hazards.* Warning statements on the flammability or explosive characteristics of the pesticide are required as follows:

Flash point	Required text
(A) PRESSURIZED CONTAINERS	
Flash point at or below 20° F, if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
Flash point above 20° F and not over 80° F or if the flame extension is more than 18 in long at a distance of 6 in from the flame.	Flammable. Contents under pressure. Keep away from heat, sparks, and open flame. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
All other pressurized containers	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
(B) NONPRESSURIZED CONTAINERS	
At or below 20° F	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
Above 20° F and not over 80° F	Flammable. Keep away from heat and open flame.
Above 80° F and not over 150° F	Do not use or store near heat or open flame.

(i) *Directions for Use*—(1) *General requirements*—(i) *Adequacy and clarity of directions.* Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment.

(ii) *Placement of directions for use.* Directions may appear on any portion of the label provided that they are conspicuous enough to be easily read by the user of the pesticide product. Directions for use may appear on printed or graphic matter which accompanies the pesticide provided that:

(A) If required by the Agency, such printed or graphic matter is securely attached to each package of the pesticide, or placed within the outside wrapper or bag;

(B) The label bears a reference to the directions for use in accompanying leaflets or circulars, such as "See directions in the enclosed circular:" and

(C) The Administrator determines that it is not necessary for such directions to appear on the label.

(iii) *Exceptions to requirement for direction for use*—(A) Detailed directions for use may be omitted from labeling of pesticides which are intended for use only by manufacturers of products other than pesticide products in their regular manufacturing processes, provided that:

(*1*) The label clearly shows that the product is intended for use only in manufacturing processes and specifies the type(s) of products involved.

(*2*) Adequate information such as technical data sheets or bulletins, is available to the trade specifying the type of product involved and its proper use in manufacturing processes;

(*3*) The product will not come into the hands of the general public except after incorporation into finished products; and

(*4*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(B) Detailed directions for use may be omitted from the labeling of pesticide products for which sale is limited to physicians, veterinarians, or druggists, provided that:

(*1*) The label clearly states that the product is for use only by physicians or veterinarians;

(*2*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment; and

(*3*) The product is also a drug and regulated under the provisions of the Federal Food, Drug and Cosmetic Act.

(C) Detailed directions for use may be omitted from the labeling of pesticide products which are intended for use only by formulators in preparing pesticides for sale to the public, provided that:

(*1*) There is information readily available to the formulators on the composition, toxicity, methods of use, applicable restrictions or limitations, and effectiveness of the product for pesticide purposes;

(*2*) The label clearly states that the product is intended for use only in manufacturing, formulating, mixing, or repacking for use as a pesticide and specifies the type(s) of pesticide products involved;

(*3*) The product as finally manufactured, formulated, mixed, or repackaged is registered; and

(*4*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(2) *Contents of Directions for Use.* The directions for use shall include the following, under the headings "Directions for Use":

(i) The statement of use classification as prescribed in 162.10(j) immediately under the heading "Directions for Use."

(ii) Immediately below the statement of use classification, the statement "It is a violation of Federal law to use this product in a manner inconsistent with its labeling."

(iii) The site(s) of application, as for example the crops, animals, areas, or objects to be treated.

(iv) The target pest(s) associated with each site.

(v) The dosage rate associated with each site and pest.

(vi) The method of application, including instructions for dilution, if required, and type(s) of application apparatus or equipment required.

(vii) The frequency and timing of applications necessary to obtain effective results without causing unreasonable adverse effects on the environment.

(viii) Specific limitations on reentry to areas where the pesticide has been applied, meeting the requirements concerning reentry provided by 40 CFR Part 170.

(ix) Specific directions concerning the storage and disposal of the pesticide and its container, meeting the requirements of 40 CFR Part 165. These instructions shall be grouped and appear under the heading "Storage and Disposal." This heading must be set in type of the same minimum sizes as required for the child hazard warning (See Table in § 162.10(h)(1)(iv).)

(x) Any limitations or restrictions on use required to prevent unreasonable adverse effects, such as:

(A) Required intervals between application and harvest of food or feed crops.

(B) Rotational crop restrictions.

(C) Warnings as required against use on certain crops, animals, objects, or in or adjacent to certain areas.

(D) [Reserved]

(E) For restricted use pesticides, a statement that the pesticide may be applied under the direct supervision of a certified applicator who is not physically present at the site of application but nonetheless available to the person applying the pesticide, unless the Agency has determined that the pesticide may only be applied under the direct supervision of a certified applicator who is physically present.

(F) Other pertinent information which the Administrator determines to be necessary for the protection of man and the environment.

(j) *Statement of Use Classification.* By October 22, 1976, all pesticide products must bear on their labels a statement of use classification as described in paragraphs (j)(1) and (2) of this section. Any pesticide product for which some uses are classified for general use and others for restricted use shall be separately labeled according to the labeling standards set forth in this subsection, and shall be marketed as separate products with different registration numbers, one bearing directions only for general use(s) and the other bearing directions for restricted use(s) except that, if a product has both restricted use(s) and general use(s), both of these uses may appear on a product labeled for restricted use. Such products shall be subject to the provisions of § 162.10(j)(2).

(1) *General Use Classification.* Pesticide products bearing directions for use(s) classified general shall be labeled with the exact words "General Classification" immediately below the heading "Directions for Use." And reference to the general classification that suggests or implies that the general utility of the pesticide extends beyond those purposes and uses contained in the Directions for Use will be considered a false or misleading statement under the statutory definitions of misbranding.

(2) *Restricted Use Classification.* Pesticide products bearing direction for use(s) classified restricted shall bear statements of restricted use classification on the front panel as described below:

(i) *Front panel statement of restricted use classification.* (A) At the top of the front panel of the label, set in type of the same minimum sizes as required for human hazard signal words (see table in § 162.10(h)(1)(iv)), and appearing with sufficient prominence relative to other text and graphic material on the front panel to make it unlikely to be overlooked under customary conditions of purchase and use, the statement "Restricted Use Pesticide" shall appear.

(B) Directly below this statement on the front panel, a summary statement of the terms of restriction imposed as a precondition to registration shall appear. If use is restricted to certified applicators, the following statement is required: "For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification." If, however, other regulatory restrictions are imposed, the Administrator will define the appropriate wording for the terms of restriction by regulation.

(k) Advertising. [Reserved]

[40 FR 28268, July 3, 1975; 40 FR 32329, Aug. 1, 1975; 40 FR 36571, Aug. 21, 1975, as amended at 43 FR 5786, Feb. 9, 1978]

~~**§ 162.11 Criteria for determinations of unreasonable adverse effects.**~~

~~(a) *Criteria for Issuance of Notice of Intent to Deny Registration, Cancel Registration, or to Hold a Hearing*—(1) *Presumption.* (i) A rebuttable presumption shall arise that a notice of intent to deny registration pursuant to section 3(c)(6) of the Act, a notice of intent to cancel registration pursuant to section 6(b)(1) of the Act, or a notice of intent to hold a hearing to determine whether the registration should be cancelled or denied, as appropriate, shall be issued, upon a determination by the Administrator that the pesticide meets or exceeds any of the criteria for risk set forth in paragraph (a)(3) of this section. Upon such determination, the Administrator shall issue notice by certified mail to the applicant or registrant, as the case may be, stating that the applicant or registrant has the opportunity to submit evidence in rebuttal of such presumption in accordance with paragraph (a)(4) of this section. The applicant or registrant shall have forty-five~~

APPENDIX IV-2

LABELING REQUIREMENTS OF THE FIFRA, AS AMENDED (REFER TO THE SAMPLE LABELS FOLLOWING)

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
1	Product name	All products	Front panel	Center front panel	
2	Company name and address	All products	None	Bottom front panel or end of label text	If registrant is not the producer, must be qualified by "Packed for . . .," "Distributed by. . .," etc.
3	Net contents	All products	None	Bottom front panel or end of label text	May be in metric units in addition to U.S. units
4	EPA Est. No.	All products	None	Front panel	Must be in similar type size and run parallel to other type.
5	EPA Reg. No.	All products	None	Front panel, immediately before or following Reg. No.	May appear on the container instead of the label.
6A	Ingredients statement	All products	Front panel	Immediately following product name	Text must run parallel with other text on the panel.
6B	Pounds/gallon statement	Liquid products where dosage given as lbs. ai/unit area	Front panel	Directly below the main ingredients statement	
7	Front panel precautionary statements	All products	Front panel		All front panel precautionary statements must be grouped together, preferably blocked.
7A	Keep Out of Reach of Children (Child hazard warning)	All products	Front panel	Above signal word	Note type size requirements.
7B	Signal word	All products	Front panel	Immediately below child hazard warning	Note type size requirements.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
7C	Skull & cross-bones and word POISON (in red)	All products which are Category I based on oral, dermal, or inhalation toxicity	Front panel	Both in close proximity to signal word	
7D	Statement of practical treatment	All products in Categories I, II, and III	Category I: Front panel unless referral statement is used. Others: Grouped with side panel precautionary statements.	Front panel for all.	
7E	Referral statement	All products where precautionary labeling appears on other than front panel.	Front panel		
8	Side/back panel precautionary statements	All products	None	Top or side of back panel preceding directions for use	Must be grouped under the headings in 8A, 8B, and 8C; preferably blocked.
8A	Hazards to humans and domestic animals	All products in Categories I, II, and III	None	Same as above	Must be preceded by appropriate signal word.
8B	Environmental hazards	All products	None	Same as above	Environmental hazards include bee caution where applicable.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
8C	Physical or chemical hazards	All pressurized products, others with flash points under 150°F	None	Same as above	
9A	Restricted block	All restricted products	Top center of front panel	Preferably blocked	Includes a statement of the terms of restriction. The words "RESTRICTED USE PESTICIDE" must be same type size as signal word.
9C	Misuse statement	All products	Immediately following statement of classification or ahead of directions for use		
10A	Re-entry statement	All cholinesterase inhibitors	In the directions for use	Immediately after misuse statement	
10C	Storage and disposal block	All products	In the directions for use	Immediately before specific directions for use or at the end of directions for use	Must be set apart and clearly distinguishable from from other directions for use.
10D U.S.	Directions for use	All products	None	None	May be in metric as well as U.S. units

Appendix IV-3

PHYSICAL-CHEMICAL HAZARDS

Criteria	Required Label Statement
I. Pressurized Containers	
A. Flashpoint at or below 20°F; or if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
B. Flashpoint above 20°F and not over 80°F; or if the flame extension is more than 18 inches long at a distance of 6 inches from the valve opening.	Flammable. Contents under pressure. Keep away from heat, sparks, and flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
C. ALL OTHER PRESSURIZED CONTAINERS	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
II. Non-Pressurized Containers	
A. Flashpoint at or below 20°F.	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
B. Flashpoint above 20°F and over 80°F.	Flammable. Keep away from heat and open flame.
C. Flashpoint over 80°F and not over 150°F.	Do not use or store near heat and open flame.
D. Flashpoint above 150°F.	None required.

STORAGE AND DISPOSAL INSTRUCTIONS FOR PESTICIDES

All products are required to bear specific label\instructions about storage and disposal. Storage and disposal instructions must be grouped together in the directions for use portion of the label under the heading STORAGE AND DISPOSAL. Products intended solely for domestic use need not include the heading "STORAGE AND DISPOSAL." The STORAGE AND DISPOSAL heading must appear in the minimum type size listed below:

Size of label front panel in square inches	Required type size for the heading STORAGE AND DISPOSAL (all capitals)
10 and under	6 point
Above 10 to 15	8 point
Above 15 to 30	10 point
Over 30	12 point

Storage and disposal instructions must be set apart and clearly distinguishable from other directions for use. Blocking storage and disposal statements with a solid line is suggested as a means of increasing their prominence.

A. Storage Instructions:

All product labels are required to have appropriate storage instructions. Specific storage instructions are not prescribed. Each registrant must develop his own storage instructions, considering, when applicable, the following factors:

1. Conditions of storage that might alter the composition or usefulness of the pesticide. Examples could be temperature extremes, excessive moisture or humidity, heat, sunlight, friction, or contaminating substances or media.

2. Physical requirements of storage which might adversely affect the container of the product and its ability to continue to function properly. Requirements might include positioning of the container in storage, storage or damage due to stacking, penetration of moisture, and ability to withstand shock or friction.

3. Specifications for handling the pesticide container, including movement of container within the storage area, proper opening and closing procedures (particularly for opened containers), and measures to minimize exposure while opening or closing container.

4. Instructions on what to do if the container is damaged in any way, or if the pesticide is leaking or has been spilled, and precautions to minimize exposure if damage occurs.

5. General precautions concerning locked storage, storage in original container only, and separation of pesticides during storage to prevent cross-contamination of other pesticides, fertilizer, food, and feed.

6. General storage instructions for household products should emphasize storage in original container and placement in locked storage areas.

B. Pesticide Disposal Instructions:

The label of all products, except those intended solely for domestic use, must bear explicit instructions about pesticide disposal. The statements listed below contain the exact wording that must appear on the label of these products:

1. The labels of all products, except domestic use, must contain the statement, "Do not contaminate water, food, or feed by storage or disposal."

2. Except those products intended solely for domestic use, the labels of all products that contain active ingredients appearing on the "Acutely Hazardous" Commercial Pesticide Products List (RCRA "E" List) at the end of this appendix or are assigned to Toxicity Category I on the basis of oral or dermal toxicity, skin or eye irritation potential, or Toxicity Category I or II on the basis of acute inhalation toxicity must bear the following pesticide disposal statement:

   "Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

   The labels of all products, except those intended for domestic use, containing active or inert ingredients that appear on the "Toxic" Commercial Pesticide Products List (RCRA "F" List) at the end of this appendix or presently meet any of the criteria in Subpart C, 40 CFR 261 for a hazardous waste must bear the following pesticide disposal statement:

"Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

Labels for all other products, except those intended for domestic use, must bear the following pesticide disposal statement:

"Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility."

3. Products intended for domestic use only must bear the following disposal statement: "Securely wrap original container in several layers of newspaper and discard in trash."

C. Container Disposal Instructions

The label of each product must bear container disposal instructions appropriate to the type of container.

1. All products intended for domestic use must bear one of the following container disposal statements:

Container Type	Statement
Non-aerosol products (bottles, cans, jars)	Do not reuse container (bottle, can, jar). Rinse thoroughly before discarding in trash.
Non-aerosol products (bags)	Do not reuse bag. Discard bag in trash.
Aerosol products	Replace cap and discard containers in trash. Do not incinerate or puncture.

2. The labels for all other products must bear container disposal instructions, based on container type, listed below:

Container Type	Statement
Metal containers (non-aerosol)	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
Plastic containers	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
Glass containers	Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.

Container Type	Statement
Fiber drums with liners	Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If drum is contaminated and cannot be reused[1], dispose of in the same manner.
Paper and plastic bags	Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.
Compressed gas cylinders	Return empty cylinder for reuse (or similar wording).

[1] Manufacturer may replace this phrase with one indicating whether and how fiber drum may be reused.

2. The labels for all other products must bear container disposal instructions, based on container type, listed on the first page of this Appendix.

Pesticides that are hazardous wastes under 40 CFR 261.33(e) and (f) when discarded.

"Acutely Hazardous" Commercial Pesticides (RCRA "E" List) Active Ingredients, (no inerts):

Acrolein
Aldicarb
Aldrin
Allyl alcohol
Aluminum phosphide
4-Aminopyridine
Arsenic acid
Arsenic pentoxide
Arsenic trioxide
Calcium cyanide
Carbon disulfide
p-Chloroaniline
Cyanides (soluble cyanide salts, not specified elsewere)
Cyanogen chloride
2-Cyclohexyl-4,6-dinitrophenol
Dieldrin
0,0-Diethyl S-[2-ethylthio)ethyl] phosphorodithioate
    (disulfoton, Di-Syston)
0,0-Diethyl 0-pyrazinyl phosphorothioate (Zinophos)
Dimethoate
0,0-Dimethyl 0-p-nitrophenyl phosphorothioate (methyl parathion)
4,6-Dinitro-o-cresol and salts
4,6-Dinitro-o-cyclohexylphenol
2,4 Dinitrophenol
Dinoseb
Endosulfan
Endothall
Endrin
Famphur
Fluoroacetamide
Heptachlor
Hexanethyl tetraphosphate
Hydrocyanic acid
Hydrogen cyanide
Methomyl
alpha-Naphthylthiourea (ANTU)
Nicotine and salts
Octamethylpyrophosphoramide (OMPA, schradan)
Parathion

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(continued)

"Acutely Hazardous" Commercial Pesticides (RCRA "E" List)
Active Ingredients continued:

Phenylmercuric acetate (PMA)
Phorate
Potassium cyanide
Propargyl alcohol
Sodium azide
Sodium cyanide
Sodium fluoroacetate
Strychnine and salts
0,0,0,0-Tetraethyl dithiopyrophosphate (sulfotepp)
Tetraethyl pyrophosphate
Thallium sulfate
Thiofanox
Toxaphene
Warfarin
Zinc phosphide

There are currently no inert ingredients for commercial pesticides on the "Acutely Hazardous" List (RCRA "E" List).

"Toxic" Commercial Pesticide Products (RCRA "F" List)
Active Ingredients:

Acetone
Acrylonitrile
Amitrole
Benzene
Bis(2-ethylhexyl)pthalate
Cacodylic acid
Carbon tetrachloride
Chloral (hydrate)
Chlordane (technical)
Chlorobenzene
4-Chloro-m-cresol
Chloroform
o-Chlorophenol
4-Chloro-o-toluidine hydrochloride
Creosote
Cresylic acid
Cyclohexane
Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]-pentalen-2-one
    (kepone, chlordecone)
1,2-Dibromo-3-chloropropane (DBCP)
Dibutyl phthalate
S-3,3-(Dichloroallyl diisopropylthiocarbamate (diallate, Avadex)
o-Dichlorobenzene
p-Dichlorobenzene
Dichlorodifluoromethane (Freon 12®)
3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide (pronamide,Kerb)
Dichloro diphenyl dichloroethane (DDD)
Dichloro diphenyl trichloroethane (DDT)
Dichlorethyl ether
2,4-Dichlorophenoxyacetic, esters and salts (2,4-D)
1,2-Dichloropropane
1,3-Dichloropropane (Telone)
Dimethyl phthalate
Ethyl acetate
Ethyl 4,4'-dichlorobenzilate (chlorobenzilate)
Ethylene dibromide (EDB)
Ethylene dichloride
Ethylene oxide
Formaldehyde
Furfural
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Hydrofluoric acid

Appendix IV-5
(continued)

"Toxic" Commercial Pesticide Products (RCRA "F" List) Active Ingredients:

Isobutyl alcohol
Lead acetate
Lindane
Maleic hydrazide
Mercury
Methyl alcohol
Methyl bromide
Methyl chloride
2,2'-Methylenebis (3,4,6-trichlorophenol) (hexachlorophene)
Methylene chloride
Methyl ethyl ketone
4-Methyl-2-pentanone (methyl isobutyl ketone)
Naphthalene
Nitrobenzene
p-Nitrophenol
Pentachloroethane
Pentachloronitrobenzene (PCNB)
Pentaclorophenol
Phenol
Phosphorodithioic acid, 0,0-diethyl, methyl ester
Propylene dichloride
Pyridine
Resorcinol
Safrole
Selenium disulfide
Silvex
1,2,4,5-Tetrachlorobenzene
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
2,3,4,6-Tetrachlorophenol
Thiram
Toluene
1,1,1-Trichloroethane
Trichloroethylene
Trichloromonofluoromethane (Freon 11®)
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)
Xylene

Appendix IV-5
(continued)

"Toxic" Commercial Pesticide Products (RCRA "F" List) Inert Ingredients:

Acetone
Acetonitrile
Acetophenone
Acrylic acid
Aniline
Benzene
Chlorobenzene
Chloroform
Cyclohexane
Cyclohexanone
Dichlorodifluoromethane (Freon 12®)
Diethyl phthalate
Dimethylamine
Dimethyl phthalate
1,4-Dioxane
Ethylene oxide
Formaldehyde
Formic acid
Isobutyl alcohol
Meleic anhydride
Methyl alcohol (methanol)
Methyl ethyl ketone
Methyl methacrylate
Naphthalene
Saccharin and salts
Thiourea
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichlorofluoromethane (Freon 11
Vinyl chloride
Xylene